EVALUATION OF ARIZONA'S HEALTH CARE COST CONTAINMENT SYSTEM DEMONSTRATION

FOURTH OUTCOME REPORT

November 1995

Prepared for:

Joan Peterson
Office of State Health Reform Demonstrations
Health Care Financing Administration
7500 Security Boulevard C-3-18-26
Baltimore, MD 21244-1850

Prepared by:

Nelda McCall
Jodi Korb
C. William Wrightson
John Wilkin
Susan Haber
Suzanne Pollack Driver
Alice Wade

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TABLE OF CONTENTS

GLOSSARY OF ABBREVIATIONS AND ACRONYMS vii

EXECUTIVE SUMMARY ES-1

1. INTRODUCTION 1
    The AHCCCS Program 1
    Organization of the Report 6

2. COST ANALYSIS OF THE AHCCCS ACUTE CARE AND ALTCS PROGRAMS 9
    Introduction 9
    Acute Care Program Costs: AHCCCS vs. Traditional Medicaid Program 11
        AHCCCS Acute Care Program Costs 12
            Fee-for-Service Claims 14
            Reinsurance Claims 17
            Deferred Liability Claims 17
            Medicare Part B Premiums 18
            Disproportionate Share Hospital Payments 18
            Third-Party Recoveries 19
            Administrative Costs 19
        Traditional Medicaid Acute Care Program Costs 21
            Estimates of Medical Service Costs for a Traditional Medicaid Program in Arizona 21
            Comparison of AHCCCS Program Costs with the Estimated Acute Care Costs of a Traditional Medicaid Program . . 36
        Acute Care Program Cost Comparison: AHCCCS vs. Traditional Medicaid Program 38
            The Program Perspective: Total AHCCCS Cost vs. Estimated Total Cost of a Traditional Medicaid Program 41
            The HCFA Perspective: HCFA AHCCCS Costs vs. Estimated HCFA Cost of a Traditional Medicaid Program 41
            The Arizona Perspective: Arizona AHCCCS Costs vs. Estimated Arizona Cost of a Traditional Medicaid Program 46
            Comparison of AHCCCS Program Outlays and Traditional Program Costs, Including Administrative Expenses . . . 46
        Analysis of Acute Program Costs for SOBRA Beneficiaries . . . 52
    Long-Term Care Program Costs: ALTCS vs. Traditional Medicaid Program 55
        ALTCS Program Costs 56
            Capitation Payments 61
            Fee-for-Service Claims 62
            Reinsurance Claims 63
            Part B Premiums 63
            Third-Party Recoveries 63
            Disproportionate Share Hospital Payments 64

Total ALTCS Outlays for Medical Care 64
Administrative Costs 64
Cost of Long-Term Care under a Traditional Medicaid Program in Arizona 65
Selection of the Comparison States 66
Data for the States in the Comparison Set 71
Cost of Medical Care for Long-Term Care Recipients . . 76
Long-Term Care User Ratio 86
Estimates of Administrative Expenses 87
Adjustments to Daily Costs in Comparison States to Obtain Expected Costs in Arizona 90
Estimates of the Daily Cost of Institutional Care . . . 102
Long-Term Care Program Cost Comparison: ALTCS vs. Traditional Medicaid Program 102
Summary and Policy Implications 113
AHCCCS Acute Care Costs 114
ALTCS Costs 117
Supplemental Tables 119

3. MEDICAL CARE UTILIZATION BY LONG-TERM CARE MEDICAID BENEFICIARIES . . 149
Introduction 149
Methodology 150
Data Sources 150
Constructing the Study Population 151
Definitions 152
Data Quality Issues 156
The Study Population 157
The Long-Term Care Delivery Systems 157
Population Characteristics 159
Type of Beneficiaries and Type of Placement 159
Demographic and Eligibility Characteristics 161
Health Status Indicators 165
Utilization Rates 169
Rates for the Population 169
EPD Beneficiaries 181
MR/DD Beneficiaries 188
Rates for Selected Population Groups 189
EPD Population Groups 190
MR/DD Population Groups 192
Multivariate Analysis of Selected Utilization Variables 194
Description of the Model 194
Results 196
Inpatient Hospital 197
Outpatient Hospital 200
Evaluation and Management Services 203
Procedures 206
Drugs 209
Summary and Policy Implications 209

4. MEDICAID UTILIZATION BY ACUTE CARE MEDICAID BENEFICIARIES 223
  Introduction 223
  Methodology 224
    Defining the Study Population 224
      Arizona 224
      New Mexico 227
    Data 227
    Service Category Definitions 229
    Data Quality Issues 233
  Description of the Study Population 234
  Utilization Rates 236
    By Eligibility Group 236
      Institutional Services 236
      Non-Institutional Services 239
    By Demographic Characteristics 242
      Age 243
      Gender 243
      Ethnicity 251
      Cash Indicator 251
  Comparison of Utilization with Other Data Sources 260
    Review of Medicaid Managed Care Data Availability 260
      Organization and Structure of Medicaid Managed Care Programs 261
      Encounter Data Reporting Requirements and Practices . . 265
      State Reported Uses for Encounter Data 269
      Receipt and Useability of Comparison Data 270
    Comparison Data Sources 273
      Medicaid Managed Care Encounter Data 274
      Other Comparison Data Sources 278
    Analyses of Rates 282
      Institutional Services 282
      Non-Institutional Services 291
  Summary and Policy Implications 299

5. SELECTION BIAS IN THE ACUTE CARE PLANS 305
  Introduction 305
  Evidence From Previous Studies of Selection Bias 306
  Methodology 308
    Evaluation Design 308
    Regression Model 309
  Data 313
    Data Sources 313
    Construction of the Sample 314
    Variables Included in the Model 315
  Results 318
    AFDC Adults 318
      Characteristics of the Sample 318
      Regression Results 320
      Comparison of Plans' Predicted Medical Expenditures . . 322
    AFDC Children 326
      Characteristics of the Sample 326

Regression Results 328
Comparison of Plans' Predicted Medical Expenditures . . 330
CCP 334
Characteristics of the Sample 334
Regression Results 336
Comparison of Plans' Predicted Medical Expenditures . . 338
Summary and Policy Implications 342
Supplemental Tables 347

ENDNOTES 355

GLOSSARY OF ABBREVIATIONS AND ACRONYMS

ADL	Activity of Daily Living
AFDC	Aid to Families with Dependent Children
AHA	American Hospital Association
AHCCCS	Arizona Health Care Cost Containment System
ALTCS	Arizona Long-Term Care System
APIPA	Arizona Physicians Independent Physicians' Association
CAP	Comprehensive AHCCCS Plan
CCIC	Coordinated Community In-Home Care
CCP	Children's Care Program
CDHS	California Department of Health Services
CPS	Current Population Survey
CY	Calendar Year
DDD	Division of Developmental Disabilities
DES	Department of Economic Security
DSH	Disproportionate Share Hospital
EAC	Eligible Assistance Children
ELIC	Eligible Low Income Children
EPD	Elderly and Physically Disabled
EPSDT	Early and Periodic Screening, Diagnosis, and Treatment
FHS	First Health Services
FY	Fiscal Year
GHAA	Group Health Association of America
GLM	Generalized Linear Model
HCB	Home and Community-Based
HCBS	Home and Community-Based Services
HCFA	Health Care Financing Administration
HMO	Health Maintenance Organization
ICF	Intermediate Care Facility
ICF/MR	Intermediate Care Facility for the Mentally Retarded
IHS	Indian Health Services
IPA	Independent Practice Association
LRA	Laguna Research Associates

MI	Medically Indigent
MMIS	Medicaid Management Information System
MN	Medically Needy
MN/MI	Medically Needy/Medically Indigent
MR/DD	Mentally Retarded/Developmentally Disabled
MSIS	Medicaid Statistical Information System
NAMCS	National Ambulatory Medical Care Survey
NCH	National Claims History
NH	Nursing Home
NHAMCS	National Hospital Ambulatory Medical Care Survey
NHDS	National Hospital Discharge Survey
NHIS	National Health Interview Survey
NMAF	New Mexico Abstraction Form
NMES	National Medical Expenditure Survey
NMMRA	New Mexico Medical Review Association
OASDI	Old-Age, Survivors, and Disability Insurance
PAS	Preadmission Screening
PCCM	Primary Care Case Management
PCP	Primary Care Physician
PHP	Prepaid Health Plan
PHS	Pima Health System
PMMIS	Prepaid Medicaid Management Information System
PMPM	Per Member Per Month
PRO	Professional Review Organization
QMB	Qualified Medicare Beneficiary
SFY	State Fiscal Year
SMI	Seriously Mentally Ill
SNF	Skilled Nursing Facility
SOBRA	Sixth Omnibus Budget Reconciliation Act
SSI	Supplemental Security Income
VHS	Ventana Health Systems

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7500 Security Boulevard C-3-18-26
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LAGUNA RESEARCH ASSOCIATES
455 MARKET ST., SUITE 1190, SAN FRANCISCO, CA 94105 • 415-512-7480

EXECUTIVE SUMMARY

Introduction

This report is the fourth outcome analysis report of the Arizona Health Care Cost Containment System (AHCCCS) produced under Health Care Financing Administration (HCFA) Contract #500-89-0067. Below we provide a brief description of the AHCCCS program, followed by a summary of findings on each of outcome issues. Issues discussed are: the cost of the AHCCCS acute care and Arizona Long-Term Care System (ALTCS) program; the utilization of medical care services by chronic long-term care beneficiaries in ALTCS and the New Mexico Medicaid program; the utilization of Medicaid services by AHCCCS and New Mexico acute care beneficiaries; and selection bias in the AHCCCS acute care program.

The AHCCCS Program

AHCCCS provided medical services to 450 thousand indigent persons in Arizona in April 1995. Arizona receives federal funding for AHCCCS as a HCFA demonstration project. AHCCCS differs from other states' indigent health care programs in that it capitates acute care plans and long-term care contractors to provide medical services to eligible beneficiaries. As of April 1995, there were fourteen acute care plans providing services to 370 thousand enrolled beneficiaries, and eight long-term care contractors providing services to more than 19 thousand enrolled long-term care beneficiaries. Forty-nine thousand acute care beneficiaries are enrolled with the Indian Health Service, and five hundred long-term care beneficiaries are served by Indian tribes. The remaining beneficiaries are a part of special eligibility groups or receive services from AHCCCS directly.

Eligibility for the acute care program includes Aid to Families with Dependent Children (AFDC) recipients, Supplemental Security Income (SSI) recipients, the medically indigent (MI), the medically needy (MN), and other special eligibility groups. AHCCCS acute care plans cover almost all traditional Medicaid outpatient and inpatient services, as well as skilled nursing services for short-term (less than 90 days) institutional care. Coverage for mental health services is being phased into the program.

Although the acute care part of the AHCCCS program has been in existence since October 1982, the long-term care component, ALTCS, did not come into existence until December 1988 for the mentally retarded developmentally disabled (MR/DD) beneficiaries and January 1989 for the elderly and physically disabled (EPD) beneficiaries. From October 1982 unti the implementation of ALTCS, long-term care services were not part of the AHCCCS program, but were provided by individual county systems.

EPD beneficiaries receive acute and long-term care services from the capitated contractor in their county. These contractors include both county operated plans (Maricopa Managed Care System, Pima Health System, Yavapai County Long-Term Care, Pinal County Long-Term Care, Cochise County Department of Health Services) and private entities (Arizona Physicians Independent Physicians' Association, Ventana Health Systems). MR/DD beneficiaries receive acute and long-term care services from the Department of Economic Security (DES), the statewide MR/DD contractor.

Eligibility for ALTCS includes both a financial and functional screen. Categorical Medicaid recipients, AFDC and SSI cash recipients, are automatically financially eligible. In addition, financial eligibility is extended to those with incomes up to 300% of SSI. Those between 100% and 300% of SSI are subject to cost-sharing depending on their income and assets. The functional screen is a preadmission screening instrument (PAS) administered by the state that is designed to target beneficiaries who are at immediate risk of institutionalization. Benefits covered under ALTCS include acute care services as well as nursing home and home and community-based (HCB) services.

HCB services covered by ALTCS include home health care, homemaker services, personal care, adult day health, hospice, respite care, transportation, and attendant care including family attendant care. EPD beneficiaries also receive home delivered meals. Habilitation and day-care services are also covered for the developmentally disabled. Although HCB services are covered, there is a cap on the home and community-based services (HCBS) use for EPD beneficiaries. The cap was originally specified as five percent of total expenditures which was translated by AHCCCS into ten percent of enrollees. During fiscal year 1995 (FY 95), October 1994 - September 1995, the limit was 40% of all enrollees.

The total budget for the AHCCCS program was projected to be $1.9 billion in state fiscal year 1995 (SFY 95), July 1994 - June 1995. It has increased dramatically over the last six fiscal years rising from $387 million in SFY 88. The ALTCS SFY 95 budget for medical service costs (i.e., capitation payments and other non-administrative costs) was $536 million. The AHCCCS program is jointly funded by the federal government, the State of Arizona, and the Arizona counties. The federal government was expected to finance 60% of SFY 95 expenditures. The state was expected to finance 30% while the remaining 10% was to be funded by the counties.

Acute care capitation payments were approximately 38% of SFY 95 projected expenditures, ALTCS medical services are 28%, fee-for-service payments are 10%, disproportionate share hospital payments 7%, mental health 6%, and administration is 5%. Expenditures for deferred liability, reinsurance, Children's Rehabilitation Services, Medicare premiums, and Qualified Medicare Beneficiaries make up the remainder of the budget.

AHCCCS has a number of activities in place to monitor quality assurance in the program in general and among acute care plans and long-term care contractors. AHCCCS requires quarterly quality assurance reports from the plans and contractors and conducts medical audits. Plans and contractors are responsible for having quality assurance and utilization review programs in place. A grievance and appeals process is also in place to adjudicate disputes involving AHCCCS members and providers. Member grievances include both those connected with eligibility determination and those related to services. Grievances related to services must first be submitted to the AHCCCS plan or contractor. Members dissatisfied with a grievance decision can appeal to AHCCCS.

Federal oversight for the AHCCCS program rests with HCFA. Both HCFA Region IX in San Francisco and the Central Office in Baltimore have responsibilities concerning oversight of the AHCCCS program. The Central Office's responsibilities have been related to ensuring compliance with the Social Security Act 1115 waivers that allow AHCCCS to receive federal Medicaid appropriations as a demonstration project. The San Francisco Regional Office monitors the ongoing operation of the program and is responsible for reviewing the federal reimbursements to AHCCCS and monitoring ongoing program implementation.

Cost Analysis of the AHCCCS Acute Care and ALTCS Programs

The cost outcome analysis focused on the cost of the AHCCCS acute care program for FY 92 and FY 93 and the cost of the ALTCS program for FY 90 to FY 93.

For the AHCCCS acute care program, the actual costs of AFDC and SSI aged, blind and disabled eligibles in Arizona were compared to the estimated cost of a traditional Medicaid program for AFDC and SSI beneficiaries. The incurred outlays for the AHCCCS acute care program, including medical service and administrative costs for AFDC and SSI eligibles, were $531.8 million in FY 92 and $613.8 million in FY 93. The cost of a traditional Medicaid program in Arizona was estimated to be $574.2 million in FY 92 and $661.6 million in FY 93. Thus, the AHCCCS acute care program cost $42.4 million (7.4%) less than a traditional program in FY 92 and $47.8 million (7.2%) less than traditional program in FY 93.

The cost of the AHCCCS acute care program has been evaluated for 11 years from FY 83 to FY 93. During that period, the AHCCCS program has produced cost savings of approximately 11% of medical costs and 7% of total costs (medical and administrative), compared to a traditional Medicaid program.

The actual cost of the ALTCS program was compared to the estimated cost of a traditional Medicaid program in Arizona. The ALTCS program includes the costs of acute and long-term care services for persons at risk of institutionalization. These same costs were estimated in the comparison states. Compared to a traditional program, ALTCS costs (including medical and administrative costs) were estimated to be 8% less in FY 90, 15% less in FY 91, 22% less in FY 92, and 21% less in FY 93. ALTCS incurred costs of $431.3 million in FY 93 were $111.6 million less than estimated traditional program costs.

A large part of the overall savings for ALTCS is a result of the significantly lower cost experience per MR/DD eligible. As compared to our estimates for a traditional program, the cost per user for MR/DD eligibles is substantially less and the number of users is larger than the traditional program estimates for all years. Approximately 95% of MR/DD eligibles in ALTCS are not institutionalized and receive HCB care in community settings. For EPD eligibles, the savings came primarily from a smaller number of months of ALTCS eligibility (9% less months in FY 90, 17% less in FY 91, 16% less in FY 92 and 13% less in FY 93).

Medical Care Utilization by Long-Term Care Medicaid Beneficiaries

An analysis of medical care utilization provides important information about the number and types of services being provided within health plans. We compared the utilization experience of long-term care beneficiaries in ALTCS with those in the New Mexico Medicaid program. Utilization data examined included both those processed by the Medicare program and those processed by the ALTCS or the Medicaid program. Data examined included institutional services (hospital inpatient and outpatient, nursing home, and home health agency), physician services (evaluation and management, procedures), ancillary services (tests, imaging, other services, HCB services), and pharmacy. Medicare and

Medicaid data are presented separately and combined. The analyses covered services received from January 1991 through September 1992. Analyses were conducted separately for the EPD and MR/DD beneficiaries. ALTCS MR/DD data for noninstitutional services were excluded because of data quality problems.

Patterns of use observed in Arizona seem more consistent with a managed care environment than those observed in New Mexico. Controlling for other variables, EPD beneficiaries in Arizona have less inpatient days and less procedures than those in New Mexico. They also tend to have patterns of use that demonstrate greater use of evaluation and management services, outpatient services, and prescription drugs. For MR/DD beneficiaries, there is less use of nursing home care in Arizona as compared to New Mexico.

Overall intensity of service use seems similar across the states, especially for dually-eligible beneficiaries. This implies that managed care for long-term care programs may have its biggest impact on the kinds and distribution of services used to meet the needs of the beneficiaries. While results are far from definitive, it is clear that chronic long-term care is an expensive proposition for the public programs that support it. Numbers reported here indicate public program costs of 20 to 30 thousand dollars per person-year depending on placement and coverage. Rationalization of the delivery system into a more integrated model and of the financing system to a capitated mode seems to provide a workable alternative to traditional fee-for-service models, one that will likely provide a different distribution of service use, de-emphasizing the use of institutional services and specialty care.

Medicaid Utilization by Acute Care Medicaid Beneficiaries

Use of Medicaid services by acute care beneficiaries in AHCCCS and the New Mexico Medicaid program are examined in FY 91 and FY 92 for a 5% random sample of beneficiaries. Comparisons were focused on AFDC and SSI beneficiaries. Services examined were institutional services (inpatient hospital, outpatient hospital, nursing home and home health services) and noninstitutional services (evaluation and management, procedures, maternity, tests, imaging, other services, and HCB services).

With respect to the use of services, the number of hospital days, the number of procedures, and the number of imaging services is smaller in Arizona than in New Mexico. Evaluation and management services are about the same in Arizona and New Mexico for AFDC beneficiaries and larger in Arizona for SSI beneficiaries.

Resources used in the two programs are similar. New Mexico had a larger percentage of its expenditures in institutional services and a smaller percentage in noninstitutional services than did Arizona. This is consistent with the distribution of resources that would be expected in a managed care as compared to a fee-for-service Medicaid program.

In addition to examining New Mexico program data, we sought comparison data from other Medicaid managed care programs, Medicaid fee-for-service programs, and general population surveys. In general, review of the data from other sources is consistent with the pattern hypothesized for managed care and found in the Arizona and New Mexico comparison. Arizona utilization rates and rates from other Medicaid managed care plan data tend to be smaller with respect to the number of inpatient hospital days and approximately the same or a little larger with respect to physician services.

Utilization rates that are not large enough as well as those that are too large are cause for concern. Consumer advocates often argue that managed care needs to be closely monitored for potential underutilization of services. They are suspicious that as financial incentives tend to favor minimal use of services, there is danger that individuals may not get the services needed. Our findings indicate that there seems to be no real evidence for this phenomenon in AHCCCS. Average consumption of services seems robust. Economies seem to be in expected areas, especially in reductions in hospital stays. In an analysis based on the submission of encounter data, submission that some assume results in underreporting, it is especially unlikely that there is widespread underutilization of services. If underreporting exists, it would result in more utilization for Arizona, which would in turn further reduce the possibility of underutilization.

Selection Bias in the Acute Care Plans

Selection bias has long been recognized as a potentially serious problem in health services markets whenever beneficiaries are offered a choice among plans. This analysis uses the natural experiment created by the random assignment of certain beneficiaries to evaluate selection bias among AHCCCS plans in Maricopa County, the largest Arizona county. Plan effects, measured by utilization differences in the randomly assigned group, are used to isolate utilization differences in the non-random group that are attributed to selection effects. Separate analyses were undertaken for AFDC adults, AFDC children, and the Children's Care Program (SOBRA-eligible children and non-categorically AHCCCS eligible children).

The strongest evidence of differential selection comes from analyses of AFDC-eligible adults. Selection bias does not appear to be a serious problem among children in the AHCCCS program. Although the estimates are not always significant, the most consistent pattern to emerge from the analyses is selection favoring the newest entrant to AHCCCS of the plans included in the study. This suggests that selection in AHCCCS is, however, mainly a cohort effect that will lessen over time. These analyses provide conservative estimates of selection bias because they do not distinguish beneficiaries who are non-randomly assigned to a plan from those who choose, which dilutes the impact of enrollment choice. Furthermore, some results that are indicative of more serious selection problems are imprecisely estimated.

While it is not a typical dimension of selection bias, the relative shares of randomized and non-randomized beneficiaries in a plan are a major component of the difference between plans in enrollee risk. Beneficiaries who do not choose a plan are substantially less costly than those who do, and the relative shares of these two groups differed significantly by plan. This comparative profitability of assigned beneficiaries may provide AHCCCS with leverage to negotiate lower payment rates because the proportion of assigned beneficiaries allocated to a plan is dependent on its capitation rate relative to other plans in the county.

The methodology used to evaluate selection bias in this study may serve as a prototype for other state Medicaid programs that offer beneficiaries a choice of plans. These states may want to consider random assignment for those who do not choose, because this would provide a built-in mechanism for monitoring plan performance.

1. INTRODUCTION

This report documents findings for two outcome issues being conducted as part of the Evaluation of the Arizona Health Care Cost Containment System, Contract No. HCFA-500-89-0067. The outcome analyses are of cost and medical care utilization. The report also presents findings for a special analysis of selection bias in the Arizona Health Care Cost Containment System (AHCCCS) acute care program.

Below we review the major features of the AHCCCS program and then describe the organization of this report.

The AHCCCS Program

As of April 1, 1995, AHCCCS provides medical services to 450,392 indigent persons in Arizona. Arizona has never had a traditional Medicaid program, and receives federal funding for AHCCCS as a Health Care Financing Administration (HCFA) demonstration project. AHCCCS differs from other states' indigent health care programs in that it capitates acute care plans and long-term care contractors to provide a full range of medical care services to eligible beneficiaries. As of April 1995, there are 14 plans providing acute care services (including short-term institutional care) to 372,573 beneficiaries, and eight long-term care contractors providing acute and long-term care services to 19,422 beneficiaries at risk of institutionalization. Acute care beneficiaries also include 49,478 beneficiaries who receive services through the Indian Health Service; 4,704 beneficiaries who are foster children receiving services from the Department of Economic Security (DES); 4,073 emergency-services-only beneficiaries who receive services on a fee-for-service basis; 101 beneficiaries in Arizona Long-Term Care System (ALTCS) long-term care plans or fee-for-service long-term care; and 41 beneficiaries in permanent fee-for-service. Long-term care beneficiaries not served in the eight capitated plans include 525 served by Indian tribes and 161 in fee-for-service.

Although the acute care portion of the program has been in existence since October 1982, the long-term care component, ALTCS, did not come into existence until December 1988 for the mentally retarded/developmentally disabled (MR/DD) and January 1989 for the elderly and physically disabled (EPD).

Eligibility groups for the AHCCCS acute care program include Aid to Families with Dependent Children (AFDC) recipients, Supplemental Security Income (SSI) recipients, the medically indigent (MI), the medically needy (MN), and other special eligibility groups [Eligible Assistance Children (EAC), Eligible Low Income Children (ELIC), and Sixth Omnibus Budget Reconciliation Act (SOBRA)]. Eligibility standards for AFDC and SSI are set by their respective programs. The State of Arizona establishes eligibility standards for MN/MI, EAC, and ELIC. Individual eligibility for SSI is determined by the Social Security Administration; for AFDC, SOBRA, and EAC by the Arizona Department of Economic Security (DES); and for MN/MI and ELIC by the Arizona counties. As of July 1, 1993, eligibility for undocumented individuals is limited to emergency care provided under emergency status through the State Emergency Services program or the Federal Emergency Services program.

AHCCCS acute care plans cover almost all traditional Medicaid outpatient and inpatient services, as well as nursing home services for short-term (less than 90 days) institutional care.

Eligibility determination for ALTCS is performed by AHCCCS and includes both a financial and a medical/functional screen. Categorical Medicaid recipients (i.e., AFDC and SSI beneficiaries receiving cash payments) are automatically financially eligible. In addition, financial eligibility is extended to those with incomes up to 300% of SSI. Beneficiaries are subject to cost-sharing depending on their income and assets. The medical/functional screen is a preadmission screening (PAS) instrument administered by the State, and is designed to target beneficiaries who are at immediate risk of institutionalization. Benefits covered under ALTCS include acute care services as well as nursing home care [i.e., skilled nursing facility (SNF) days, intermediate care facility (ICF) days, intermediate care facility for the mentally retarded (ICF/MR) days], and home and community-based (HCB) services.

HCB services covered by ALTCS include home health care, homemaker services, personal care, adult day health, hospice, respite care, transportation, and home-delivered meals. Habilitation and day-care services are also covered for the developmentally disabled. The home and community-based services (HCBS) program waiver was extended to permit family member attendant care in June 1991. A two-year supportive living pilot program limited to 100 ALTCS beneficiaries in Maricopa County was introduced in November 1993. Although HCB services are covered, there is a cap on HCBS use for EPD beneficiaries. The cap was originally set at 5% of total expenditures, initially translated by AHCCCS into 10% of enrollees. During fiscal year 1995 (FY 95) the limit was set at 40% of total EPD enrollees and varied across program contractors and counties, with a low of 17% for Ventana Health System in Gila County and a high of 39% for Ventana Health System in Navajo County.

Since the beginning of the program, AHCCCS has operated under a waiver that allows the state to limit mental health services provided. Phase-in of mental health services began in October 1990 with the coverage of Title XIX mental health and substance abuse services for children under 18 requiring 24-hour supervised care. In April 1991 coverage was extended to all Title XIX eligible children under age 18, and in October 1991 to Title XIX eligible individuals 18 through 20 years of age. In November 1992, AHCCCS extended coverage to seriously mentally ill (SMI) adults over 21 years of age in the acute care program. In July 1993, mental health services were extended to the 65-year-old and older ALTCS population. Expansion of services to non-SMI adults over age 21 in the acute care program and to ALTCS recipients ages 21 through 64 was approved by the Arizona legislature for implementation October 1, 1995.

As of April 1995, there were 14 participating AHCCCS acute care plans and eight long-term care contractors. Names of the plans or contractors and their number of program enrollees as of April 1, 1995 are presented in Table 1-1.

The total budget for the AHCCCS program is estimated to be $1.89 billion in state fiscal year (SFY) 1995. This constitutes a dramatic increase from the $555 million budget of SFY 89. The ALTCS SFY 95 budget for capitation payments and other non-administrative costs is estimated to be $536 million. The AHCCCS program is jointly funded by the federal government, the State of Arizona, and the Arizona counties. The federal government is expected to finance approximately 60% of SFY 95 expenditures. The State is expected to finance 30%, with 10% to be funded by the counties.

Acute care capitation payments are approximately 38% of SFY 95 budgeted expenditures, ALTCS capitation payments and other non-administrative costs are 28%, fee-for-service payments are 10%, disproportionate share hospital payments are 7%, mental health is 6%, administration is 5%, reinsurance is 3%, and deferred liability is 1% of total budgeted expenditures. Note that since the deferred liability program was discontinued as of October 1, 1994, this amount in SFY 95 represents the "tail" of payment for the deferred liability program. Smaller percentages are budgeted for Children's Rehabilitation Services, Medicare premiums, and Qualified Medicare Beneficiaries (QMBs).

AHCCCS has a number of activities in place to monitor quality assurance in the program in general and among acute care plans and long-term care contractors. AHCCCS requires submission of quarterly quality assurance reports from the plans and contractors and conducts medical audits. Plans and contractors are responsible for having quality assurance and utilization review programs in place. A grievance and appeals process is also in place to adjudicate disputes involving AHCCCS members and providers. Member grievances include those related to eligibility determination and to the provision of services. Grievances related to services must first be submitted to the AHCCCS plan or contractor. Members dissatisfied with a grievance decision can appeal to AHCCCS.

Table 1-1

ACUTE CARE PLANS AND LONG-TERM CARE CONTRACTORS NAMES AND ENROLLMENT AS OF APRIL 1, 1995

Name of Plan or Contractor	Number of Enrollees
Acute Care Plans	
Access Blue Connection	31,652
Advantage Health Plan	16,814
AHCCCS Select	4,920
Arizona Health Concepts	10,096
Arizona Physicians Independent Physicians' Association	102,282
CIGNA Community Choice	39,493
Doctors' Health Plan	2,597
Family Health Plan of Northeastern Arizona	6,388
Health Choice Arizona	15,573
Maricopa Managed Care System	31,374
Mercy Care Plan	66,784
Phoenix Health Plan	20,816
Pima Health System	12,597
Regional AHCCCS Health Plan	11,187
All Plans	372,573
Long-Term Care Contractors	
Arizona Physicians Independent Physicians' Association	397
Cochise County Department of Health Services	400
Department of Economic Security	7,096
Maricopa Managed Care System	7,478
Pima Health System	2,082
Pinal County Long-Term Care	468
Ventana Health Systems	1,001
Yavapai County Long-Term Care	500
All Contractors	19,422

Federal oversight for the AHCCCS program rests with HCFA. Both HCFA Region IX in San Francisco and the Central Office in Baltimore have responsibilities concerning oversight of the AHCCCS program. The Central Office ensures compliance with the Social Security Act 1115 waivers that allow AHCCCS to receive federal Medicaid appropriations as a demonstration project. The San Francisco Regional Office monitors the ongoing operation of the program, reviews the federal reimbursements to AHCCCS, and monitors ongoing program implementation.

Organization of the Report

In each of the chapters, information is organized into major sections that include an introduction, which begins the chapter, and a summary and policy implications section, which ends the chapter. Those readers not wishing to read all the detailed methods and findings are directed to the summary and policy implications section of each chapter (see Table of Contents).

Chapter 2 of this report reviews the cost of the AHCCCS acute care program and the ALTCS program. Program costs are compared against estimates of the cost of a traditional Medicaid program in Arizona. The AHCCCS acute care program analysis follows the same methodology as has been used in our previous evaluations of the cost of the acute care program. The analysis of the ALTCS program compares the actual cost incurred by ALTCS with the average of the adjusted costs of a traditional Medicaid program in a group of comparison states. This chapter is authored by William Wrightson, John Wilkin, Alice Wade, and Nelda McCall.

Chapter 3 presents findings from an analysis of utilization data for chronic long-term care beneficiaries in Arizona and New Mexico. Data on Medicaid utilization obtained from the states (encounter data in Arizona and claims data in New Mexico) are combined with Medicare utilization data obtained from HCFA for Arizona and New Mexico. This chapter is authored by Nelda McCall and Jodi Korb.

Chapter 4 presents findings on the use of medical services by acute care beneficiaries. This analysis uses encounter data from AHCCCS and Medicaid claims data from New Mexico's fiscal intermediary. Also presented are the results of LRA's effort to assess the availability of and collect utilization data for Medicaid beneficiaries enrolled in capitated managed care plans in eleven states, as well as utilization information from other published data sources. This chapter is authored by Nelda McCall, Jodi Korb, and Suzanne Pollack Driver.

Chapter 5 presents findings on an analysis of selection bias in the AHCCCS acute care program. This analysis compares the utilization of medical services by beneficiaries who choose a health plan against those who are assigned a health plan. The analysis is based on AHCCCS encounter data for Maricopa County. This chapter is authored by Susan Haber.

2. COST ANALYSIS OF THE AHCCCS ACUTE CARE AND ALTCS PROGRAMS

Introduction

This chapter presents the results of an analysis of the costs of the Arizona Health Care Cost Containment System (AHCCCS). Arizona has a unique alternative to a traditional Medicaid program. The Arizona program has two components: 1) an acute care portion of the program that provides acute and some long-term care services to eligibles, and 2) the Arizona Long-Term Care System (ALTCS), which is responsible for delivering acute and long-term care services to persons in need of long-term care. A primary goal of AHCCCS is to deliver high-quality care to Medicaid eligibles at a cost no higher than would be required to support a traditional fee-for-service Medicaid program in the state. The objective of this cost outcome analysis is to compare AHCCCS' actual cost with the cost that would have been incurred under a traditional Medicaid program in Arizona.

Since the beginning of the AHCCCS evaluations in 1983, we have used the phrase "the cost of a traditional Medicaid program in Arizona" to refer to the AHCCCS cost comparison data. "The cost of a traditional Medicaid program in Arizona" was the average per capita cost of the states in our comparison group with appropriate adjustments. In 1983, all the comparison states were essentially fee-for-service "traditional programs." By 1993, however, many other states had adopted some form of managed care program, so that the comparison states had become less "traditional." Although it may be more accurate in 1993 to consider the comparison as one between Arizona and a "typical" or "average" Medicaid program rather than a "traditional" program, we maintain the terminology ("cost of a traditional Medicaid program") for consistency with previous reports.

The AHCCCS program has been operating since fiscal year 1983 (FY 83). Cost comparisons for the first nine years of the AHCCCS acute care program have been published in earlier reports.[1] For the first nine years of the program, the estimate of overall program savings for the acute care program for medical services costs was $173.3 million, or 11.2% of acute medical services costs.[2] These estimates did not include administrative costs. The program was also able to stay within its prospectively determined budget and to control the rate of increase in costs compared to traditional fee-for-service programs. From FY 83 to FY 91, AHCCCS per capita cost increased 69.2% while similar Medicaid programs' per capita cost increased by 113.3%.[3] For the sixth through ninth program years, estimates were also made for cost savings including administrative costs. The estimated savings were 2.2% for FY 88 (Year 6), 9.0% for FY 89 (Year 7), 5.8% for FY 90 (Year 8), and 13.2% for FY 91 (Year 9).

Comparing the cost of the AHCCCS program to what a traditional Medicaid program would have cost in Arizona presents a number of conceptual and practical difficulties. Each state Medicaid program is unique with many differences from other state programs that have a significant effect on costs. Within the federal guidelines, there are a large number of decisions that affect eligibility, the specific services provided, and reimbursement for these services.

Additional problems arise from the way that data are gathered and compiled. Data reported for particular types of medical services may not represent the same services or providers in different states. Further, it is difficult to determine precisely what states cover or include in various tabulations. It is not always possible to determine with precision the full benefits offered from information available at the federal level.

There are, however, a number of aspects of the cost of a Medicaid program that can be compared. The analysis in this report will use different standards of comparison and different perspectives — not only the total cost of the programs but how the cost is divided between Arizona and the federal government.

This chapter is divided into three main parts. In the first part, we present the results of analysis of the AHCCCS acute care program for the tenth and eleventh years of operation, FY 92 and FY 93. In the second part, we analyze the cost of the ALTCS program for FY 90, FY 91, FY 92 and FY 93, the second through fifth years of the ALTCS program. The chapter concludes with a summary and policy implications section that reviews the chapter's main findings.

Acute Care Program Costs: AHCCCS vs. Traditional Medicaid Program

An estimate of the cost impact of the acute care portion of the AHCCCS program is sensitive to the conceptual basis, methodology, and underlying assumptions used to estimate both what a traditional Medicaid program would have cost in Arizona and the actual incurred cost of the program. Also affecting the estimate is whether cost is viewed from the perspective of the program itself, the federal government, or the state and local governments.

In previous reports, the cost of a traditional acute care Medicaid program in Arizona was estimated both prospectively and retrospectively. The prospective approach was based on the capitation rates that were established for Health Care Financing Administration (HCFA) reimbursement to Arizona. Initially, these rates reflected the projected cost of equivalent Medicaid programs, using the methodology adopted in the initial agreement between the State of Arizona and HCFA. Federal reimbursement was based on 95 percent of the agreed-on prospective rates multiplied by the federal medical assistance percentage. Because the government was reimbursing only 95 percent and not 100 percent of the agreed-on rate, this five percent difference provided for a federal saving relative to the prospective estimates of the cost of a traditional Medicaid program. Because HCFA and Arizona agreed to base federal reimbursement on the federal matching share of Arizona expenditures, effective October 1990, the analysis using prospective rates is not included in this report. Instead, the analysis is conducted using the retrospective approach.

Under this retrospective approach, the cost of a traditional program in Arizona was estimated by using actual data for each year and for similar services from Medicaid programs in states that cover comparable beneficiaries. These estimates were prepared with all the advantages of hindsight, including knowledge of how all facets of the program were actually implemented. Under the AHCCCS program, the federal government shares in program cost for Aid to Families with Dependent Children (AFDC) eligibles, Supplemental Security Income (SSI) eligibles, and Sixth Omnibus Budget Reconciliation Act (SOBRA) eligibles.

The results of the analysis of program saving for the first five years of the AHCCCS program are documented in the Final Report of the project team's previous AHCCCS evaluation.[4] Specific details are given in that project's evaluation reports.[5] The methodology and results for the sixth through ninth years are presented in the First and Second Outcome Reports of this evaluation.[6]

The methodology used for the acute care analysis reported here is consistent with the methodology used to analyze the first nine years of the program. Below we summarize the actual cost of the AHCCCS acute care program. Following that we discuss the methodology used for estimating the cost of a traditional fee-for-service acute care Medicaid program in Arizona. Finally, we discuss the results of the comparison of AHCCCS costs to the traditional program costs.

AHCCCS Acute Care Program Costs

This section discusses the cost of the AHCCCS acute care program for FY 92 and FY 93. Each category of cost was estimated on an incurred cost basis (i.e., including costs for all services provided and cost incurred during the year). The seven major categories of program cost are:

(1) Capitation payments to plans – Payments from the AHCCCS administration to the participating health plans for provision of care on a prepaid capitation reimbursement basis.

(2) Fee-for-service claims — Payments from AHCCCS to hospitals, physicians and other providers for services rendered to program eligibles not enrolled in prepaid plans. Reimbursement for these services is on a capped fee-for-service basis. Also included are outpatient hospital services not provided by prepaid plans that are paid via a reimbursement methodology based on hospital specific cost-to-charges ratios.

(3) Reinsurance claims — Payments from AHCCCS to participating plans for claims incurred by the plans in excess of a deductible for an individual member during a 12-month contract-year period.

(4) Deferred liability claims — Payments from AHCCCS to participating plans for claims incurred by plans for persons in a hospital at enrollment, and for persons having specified high-cost conditions.

(5) Medicare Part B premiums — Payments by the state for Supplementary Medical Insurance premiums to buy AHCCCS eligibles who were also eligible for Medicare into Part B of Medicare.

(6) Disproportionate Share Hospital (DSH) Payments — Payments from AHCCCS to hospitals in Arizona to compensate for the hospital serving a disproportionate share of low income patients.

(7) Third Party Recoveries — Costs recovered by AHCCCS from liable third parties (i.e., workman's compensation, auto insurers for car accidents, etc.). These amounts are offsets to costs incurred by the AHCCCS program.

(8) Administrative costs — Expenditures related to administration of the AHCCCS acute care program.

This analysis focuses on the cost of medical services delivered to categorically eligible AFDC and SSI eligibles. It excludes Native Americans residing on reservations who do not elect to join prepaid plans. It does not cover the cost of services to the medically indigent (MI) or medically needy (MN) because these AHCCCS beneficiaries are not eligible for federal financial participation. Native Americans living on reservations are excluded because costs for Native Americans are handled separately [e.g., all Indian Health Services (IHS) facility costs are passed through at a 100 percent federal matching rate]. In addition, the state-only Eligible Assistance Children (EAC) and Eligible Low-Income Children (ELIC) programs are also excluded from the analysis. Limited results are presented at the end of this section for the SOBRA program for pregnant women and children.

Table 2-1 shows the medical service cost of the AHCCCS acute care program for FY 92 and FY 93. Each category of cost is discussed below.

Capitation Payments

The largest component of AHCCCS program cost consists of capitation payments to participating plans. Each plan receives a monthly prospective payment for all eligibles enrolled in the plan on the first of the month. Each plan also receives a monthly payment for retroactive adjustments (e.g., persons who enroll during the month and other adjustments for retroactive changes in eligibility).

The estimates of the incurred capitation cost are based on the effective month of plan enrollment of each beneficiary. The total estimated incurred capitation cost for FY 92 and FY 93 is summarized in Table 2-1 by category of eligibility. Total capitation payments for categorical eligibles in FY 92 and FY 93 were $350.3 million and $459.6 million, respectively. The FY 93 capitation payments include $57.3 million for mental health capitation. Capitation payments were 71 percent of total medical service outlays in FY 92 and 81 percent in FY 93.

Fee-for-Service Claims

AHCCCS pays providers on a capped fee-for-service basis for services delivered to persons who are eligible for AHCCCS but not yet enrolled in a prepaid health plan. Claims must be submitted within 12 months of the date of service to qualify for reimbursement. There may still be some claims outstanding after 12 months, because more information may be needed or other problems may be encountered with the claim. Most claims, however, are settled within three months of receipt so that few claims are outstanding more than a year after the date of service.

For FY 92 (the tenth program year), we assumed that there were no fee-for-service claims payments outstanding as of February 1994, when the claims

Table 2-1

AHCCCS ACUTE PROGRAM INCURRED OUTLAYS FOR CATEGORIES OF FEDERAL ELIGIBILITY BY FISCAL YEAR AND TYPE OF OUTLAY
(in thousands)

	AFDC	Aged	Blind	Disabled	Total
FY 92	$324,244	$25,278	$2,127	$142,172	$493,821
Capitation Payments	237,022	17,985	1,518	93,735	350,261
Fee-for-Service Claims	57,287	644	159	14,282	72,372
Mental Health Claims	40,547	0	74	7,018	47,639
Other FFS Claims	16,740	644	85	7,264	24,733
Reinsurance Claims	4,268	86	57	9,873	14,285
Paid through 2/10/94	3,854	73	47	8,807	12,781
Estimated Unpaid	414	13	10	1,066	1,504
Deferred Liability	4,674	0	0	142	4,816
Paid through 2/10/94	4,674	0	0	142	4,816
Estimated Unpaid	0	0	0	0	0
Part B Premium	6	2,570	61	3,231	5,868
Disproportionate Share Hospital Payments	21,401	4,060	332	21,140	46,933
Third Party Collections	(414)	(67)	0	(231)	(711)

Table 2-1 (Concluded)

AHCCCS ACUTE PROGRAM INCURRED OUTLAYS FOR CATEGORIES OF FEDERAL ELIGIBILITY BY FISCAL YEAR AND TYPE OF OUTLAY
(in thousands)

	AFDC	Aged	Blind	Disabled	Total
FY 93	$346,147	$27,659	$2,473	$190,974	$567,253
Capitation Payments	293,813	19,555	1,801	144,439	459,608
Mental Health Capitation	25,420	349	112	31,434	57,315
Other Capitation Payments	268,393	19,206	1,689	113,005	402,293
Fee-for-Service Claims	15,955	138	47	2,506	18,646
Mental Health Claims	3,049	0	1	593	3,643
Other FFS Claims	12,808	138	46	1,864	14,856
Estimated Unpaid as of 9/30/94	98	0	0	49	147
Reinsurance Claims	5,324	258	142	12,797	18,521
Paid through 9/30/94	4,711	257	107	10,748	15,823
Estimated Unpaid	613	1	35	2,049	2,698
Deferred Liability	4,487	1	0	56	4,544
Paid through 9/30/94	4,479	1	0	56	4,536
Estimated Unpaid	8	0	0	0	8
Part B Premium	9	3,158	76	4,228	7,471
Disproportionate Share Hospital Payments	27,022	4,624	407	27,206	59,259
Third Party Collections	(463)	(75)	0	(258)	(796)

Source: Finance Department, Division of Business, Finance and Research, AHCCCS Administration.

data were tabulated. Thus, there is no estimate of incurred but unpaid claims for FY 92. Total fee-for-service claims paid by AHCCCS for categorical eligibles (excluding Native Americans) for FY 92 were $47.6 million for mental health claims and $24.7 million for other fee-for-service claims.

For FY 93 (the eleventh program year), there was still a flow of fee-for-service claims payments as of September 1994. Table 2-1 shows the estimated incurred-but-unpaid claims by category of eligibility for FY 93. A total unpaid liability of $147,000 was estimated for fee-for-service claims,[7] resulting in total fee-for-service claims of $18.6 million for FY 93.

Reinsurance Claims

To protect participating health plans against catastrophic expenses for individual enrolled members, AHCCCS provides reinsurance for claims exceeding a large deductible for any individual during a 12-month fiscal-year period. In the tenth and eleventh program years, in addition to the deductible ($10,000, $20,000 or $30,000 per individual, depending on plan size by county), plans also had to pay 20 percent coinsurance for allowable costs exceeding the deductible. Allowable charges were determined according to adjusted billed charges for hospital services and a capped fee schedule for physicians and other providers. Total reinsurance cost for federal beneficiaries was $14.3 million in FY 92 and $18.5 million in FY 93 (see Table 2-1).

Deferred Liability Claims

Deferred liability coverage was initiated in the third program year as compensation to plans for automatic assignment of medically needy/medically indigent (MN/MI) eligibles who were hospitalized on the date of enrollment. In the fourth program year, FY 86, the deferred liability coverage was extended to categorical eligibles. Plans could apply to AHCCCS for coverage of claims for newly enrolled members under specified conditions. These circumstances were as follows:

- The member is hospitalized on the effective date of enrollment. In this case, liability may be deferred until the member is discharged or for up to 15 days, whichever is less, subject to utilization review by AHCCCS.
- The member is receiving either active chemotherapy or active radiation treatment for malignant or metastatic diseases.
- The member is in the last two weeks of a high risk pregnancy.

In FY 87, the fifth program year, the 15-day limitation was removed for MN/MI members without Part A Medicare coverage. Plans could thus claim reimbursement for these beneficiaries until the day of discharge from the hospital. The 15-day limitation remained for categorical eligibles and MN/MI beneficiaries with Part A. In addition, compensation for services rendered to sick newborns as defined in Arizona Rule R9-22-101 could be claimed under deferred liability. Effective October 1, 1989, deferred liability was limited to members or sick newborns hospitalized on the day of enrollment. Acute health plans paid 50 percent of the cost associated with their hospital care in FY 92 and FY 93. For FY 92 and FY 93, the cost of deferred liability was $4.8 million and $4.5 million, respectively. It should be noted that AHCCCS discontinued the deferred liability program effective October 1, 1994.

Medicare Part B Premiums

For categorical eligibles who have joint Medicare eligibility, AHCCCS pays premiums to buy these eligibles into Part B of Medicare, the Supplementary Medical Insurance program. As shown in Table 2-1, Part B premiums were estimated by AHCCCS at $5.9 million in FY 92 and $7.5 million in FY 93.

Disproportionate Share Hospital Payments

DSH payments started in Arizona in FY 92 to compensate hospitals that served a disproportionate share of low income patients. Total DSH payments were $72.7 million in FY 92 and $91.1 million in FY 93. DSH payments are allocated to AHCCCS acute care beneficiary groups and ALTCS groups based on their percentage distribution of inpatient hospital expenditures to total program inpatient hospital expenditures. DSH payments for AFDC and SSI eligibles were estimated to be $46.7 million in FY 92 and $59.3 million in FY 93.

Third-Party Recoveries

In the third program year, AHCCCS developed a special unit in the Finance Department to concentrate on securing recoveries from liable third parties (i.e., worker's compensation, auto insurers for car accidents, etc.). The recoveries were received starting in the fourth program year. For federal eligibles, the recoveries were estimated at $711,000 in FY 92 and $796,000 in FY 93. These amounts are offsets to costs incurred by the AHCCCS program and are shown as negative entries in Table 2-1.

Administrative Costs

AHCCCS incurs costs for administering both the acute care program and the long-term care program (ALTCS) in Arizona. Table 2-2 presents data on administrative costs for the AHCCCS acute care and ALTCS programs for FY 88 to FY 93. The total administrative costs of AHCCCS were $76.6 million in FY 92 and $94.7 million in FY 93. The costs associated with development of the Prepaid Medicaid Management Information System (PMMIS) and one-time costs experienced by AHCCCS are subtracted from the total to determine net administrative costs. The medical service costs shown in Table 2-2 include expenditures for categories of beneficiaries not included in this report (Native Americans, SOBRA women and children, etc.) and therefore are higher than the total medical service costs shown in Table 2-1. The administrative percentages for the ALTCS program and the AHCCCS acute care program are estimated at the bottom of Table 2-2.

Table 2-2

AHCCCS ADMINISTRATIVE COSTS FOR THE ALTCS AND AHCCCS ACUTE CARE PROGRAMS: FY 88 THROUGH FY 93

(costs in thousands)

	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93
Total Computable Costs	$ 29,504.3	$ 53,573.1	$ 70,146.6	$ 80,339.9	$ 76,623.6	$ 94,683.6
Exclusions:						
PMMIS DDI	(5,385.6)	(7,349.6)	(10,603.3)	(4,476.4)	0.0	0.0
LTC Start-up	(6,388.7)	2,954.0	0.0	0.0	0.0	0.0
SOBRA Start-up	0.0	(1,511.1)	(5,731.8)	(5,298.0)	0.0	0.0
Board of Nursing	0.0	0.0	(100.2)	(612.9)	0.0	0.0
MH Start-up	0.0	0.0	0.0	(2,679.5)	(101.3)	0.0
Net Administrative Costs	17,730.0	41,758.4	53,711.3	67,273.1	76,522.2	94,683.6
ALTCS	0.0	11,880.2	15,487.1	14,091.4	15,274.9	16,861.1
AHCCCS Acute	17,730.0	29,878.2	38,224.2	53,181.7	61,247.3	77,822.5
Medical Services Costs	183,119.0	391,960.8	570,980.1	772,594.5	1,145,732.0	1,375,369.4
ALTCS	0.0	138,895.5	192,358.4	323,905.8	348,732.0	425,973.0
AHCCCS Acute	183,119.0	253,065.3	378,621.7	448,688.7	797,000.0	949,396.4
Administrative Costs as a Percent of Medical Services Costs	9.68%	10.65%	9.41%	8.71%	6.68%	6.88%
ALTCS	0.00	8.55	8.05	4.35	4.38	3.96
AHCCCS Acute	9.68	11.81	10.10	11.85	7.68	8.20

Source: Summary of AHCCCSA administrative expenditures for fiscal year ended for dates shown above, Finance Department, Division of Business, Finance, and Research, AHCCCS Administration.

As a percentage of medical service costs, the administrative costs for the AHCCCS acute care program were 7.68% for FY 92 and 8.20% for FY 93. For the ALTCS program, administrative costs were 4.38% of medical service costs in FY 92 and 3.96% in FY 93. As discussed in the Fourth Implementation and Operation Report, the ALTCS administrative costs included only those expenditure categories that were specifically identified with the ALTCS program.[8] Since other expenditure categories not specifically identified with the ALTCS program could also include administrative costs, it is therefore likely that the administrative costs for ALTCS were somewhat greater than the figures shown in Table 2-2, and the AHCCCS administrative costs were correspondingly lower. AHCCCS also incurred administrative expenses for start-up and operations related to the mental health program in FY 92.

In addition, it should be noted that the data in Table 2-2 do not include the administrative costs of the prepaid health plans that contract with AHCCCS. The administrative costs of the prepaid health plans are included in the capitation payments made to the plans.

Traditional Medicaid Acute Care Program Costs

This section presents estimates of the cost of a traditional Medicaid program in Arizona in FY 92 and FY 93. We first describe the methodology used to develop the rates agreed to by HCFA and Arizona, which were the basis for the federal capitation payments to the State of Arizona until FY 91. Beginning in October 1990, HCFA paid Arizona on a matching percentage basis for medical expenditures, similar to other state Medicaid programs. First, we describe our methodology for estimating the cost of a traditional Medicaid program, then we present estimates of administrative costs for traditional Medicaid programs.

Estimates of Medical Service Costs for a Traditional Medicaid Program in Arizona

This section discusses the development of the retrospective estimates of the cost that would have been incurred by a traditional Medicaid program in

Arizona. For acute care medical services, the estimates are based on the cost per eligible of a traditional program in a set of comparison states. Because cost per eligible varies significantly by state, an accurate estimate of traditional Medicaid program cost requires the use of several states in the comparison. In selecting a set of appropriate comparison states, two criteria are used: 1) the quality of the cost and eligibility data submitted by the states, and 2) the similarity of the Medicaid programs in the comparison states to the AHCCCS program in Arizona.

With respect to the first criterion, experience shows that data quality is better in states that have a fully-operating Medicaid Management Information System (MMIS) than in states that do not. HCFA has established a comprehensive set of criteria for certifying MMIS systems and provides financial incentives to states to meet these standards. For the purpose of this analysis, a fully operational MMIS is defined as one that was in existence at least two years prior to the start of AHCCCS.

The second criterion is met by selecting comparison states that have program characteristics similar to those of AHCCCS. Program characteristics are matched separately for each of the four major eligibility groups: aged, disabled, blind, and AFDC.

The sources of data for estimating traditional program costs are the HCFA-2082 and HCFA-64 federal reports. The HCFA-2082 provides more detailed data, but the HCFA-64 report contains the most accurate financial data on Medicaid program outlays. The HCFA-64, which is audited and becomes the basis for determining federal reimbursement to the states, reports reimbursable amounts by type of service. All of the expenditures for the following services are used in the estimate of traditional acute care program costs: inpatient hospital; physician services; outpatient hospital; prescription drugs; dental services; other practitioners; clinic services; laboratory; radiology; sterilizations; early and periodic screening, diagnosis and treatment (EPSDT); rural health; and health insurance premiums.

In addition, the recuperative portion of skilled nursing facility (SNF) and home-health care services is considered acute care. Data from the Medicare program, which covers only those services that are provided for recuperative services, are used to separate the SNF and home-health care expenditures reported on the HCFA-64 reports into those for acute care (to be included in this analysis) and those for long-term care (to be included in the analysis discussed in the next part of this chapter).[9] Each state's SNF expenditures for recuperative services is estimated by multiplying the state's inpatient hospital expenditures by the Medicare program-wide ratio of SNF service expenditures to inpatient hospital expenditures. Each state's home-health expenditures for recuperative services is estimated in the same way (i.e., by multiplying the state's inpatient hospital expenditures by the Medicare program-wide ratio of home-health service expenditures to inpatient hospital expenditures). The estimates of SNF and home-health services expenditures for recuperative services are then subtracted from total Medicaid SNF and home-health expenditures to estimate long-term care expenditures for each of these services.

For some of the comparison states, a much larger amount is listed for inpatient hospital expenditures on the HCFA-64 report than on the HCFA-2082. One reason for this discrepancy is that taxes and donations and/or DSH adjustment payments are included in the inpatient hospital service category on the HCFA-64 report and are not included in any category on the HCFA-2082 report. Hospitals that treat a disproportionate share of low-income patients have a disproportionate amount of bad debts because Medicaid reimbursements do not always cover full costs to hospitals and because low-income individuals not covered by Medicaid are less likely to be able to pay hospital bills. DSH payments are a means by which the states can receive federal matching for financial assistance that they provide to those hospitals that treat a high percentage of low-income or Medicaid patients. Through the end of FY 91, there was no upper limit on the amount of these payments that were eligible for federal matching. Some states used tax and/or required donation schemes to raise money from the hospitals and then used DSH payments or increased allowable charges to return the funds to the hospitals. These taxes or "expenses" are eligible for federal matching, effectively increasing the federal match rate and lowering the state share. The Medicaid Voluntary Contribution and Provider-Specific Tax Amendments Act of 1991 was passed in December of 1991 in an effort to limit the use of voluntary contributions and provider-specific taxes to obtain reimbursement for Medicaid dollars from the federal government.

Beginning with FY 93, the HCFA-64 report identifies the DSH payments separately from inpatient hospital expenditures. The DSH payments, however, are still not included on the HCFA-2082 report because these payments do not appear in the amount charged to individual patients.

In our analysis, all DSH payments are treated as inpatient hospital expenditures. The only exception is that DSH payments are excluded from inpatient hospital expenditures when determining the portion of SNF and home-health expenditures considered to be acute care, as described above.

The HCFA-2082 report contains more detailed data than the HCFA-64. It provides information on dollars spent, recipients, eligibles, and service utilization by maintenance assistance status and basis of eligibility. The maintenance assistance status categories are: 1) categorically needy receiving cash assistance, 2) categorically needy not receiving cash assistance, 3) medically needy, 4) other coverage groups created by legislation effective prior to 1988, and 5) other coverage groups created by legislation after 1988. The basis of eligibility categories are: 1) aged, 2) blind, 3) disabled, 4) children, 5) caretaker relatives and pregnant women, and 6) other.

For this report, the HCFA-2082 report is used to distribute the amounts spent as reported on the HCFA-64 among the maintenance assistance status categories and basis of eligibility categories. This distribution provides the information necessary to estimate per capita costs for those whose maintenance assistance status was categorically needy receiving cash assistance in each of the four major eligibility groups used in our analysis (aged, disabled, blind, and AFDC). Breaking down the costs in this way provides data that will insure the most reliable estimates of per capita costs and the most comparable population groups among the states.

Costs per eligible vary significantly among the four eligibility groups. The cost per eligible is approximately three times as high for the disabled as for AFDC eligibles. Therefore, a valid comparison of traditional program costs to AHCCCS costs requires that the comparison be conducted separately for each eligibility group. For each of these eligibility groups, calculations were limited to recipients having a maintenance assistance status of categorically needy, receiving cash assistance (category #1 of the maintenance assistance categories). Category #3 is excluded because Arizona does not have a medically needy program that receives federal funds. The other categories are excluded because they include individuals whose eligibility is based on a variety of special provisions such as those who would be eligible for cash assistance except for their institutional status and individuals in institutions who are eligible under a special limit (up to 300 percent of SSI). There is considerable variability in how individual states report data for these categories and considerable uncertainty regarding the number of persons potentially eligible for such benefits.

The same basic methodology has been used to estimate the acute care costs of a traditional Medicaid program in Arizona from FY 83 through FY 93. However, some minor changes have been necessary. For example, a change in federal Medicaid data reporting required a revision in the methodology. In the first report on AHCCCS program savings, the monthly HCFA-120 reports were used to estimate the number of Medicaid eligibles in comparison states. Beginning in FY 85, these reports were discontinued. The annual HCFA-2082 report became the primary vehicle for reporting the number of Medicaid eligibles, but the first reports of eligibles were of questionable quality. Although the quality of HCFA-2082 eligibility data for FY 90 and FY 91 has improved, in order to maintain a consistent method through time, the same data source (as described in the next two paragraphs) has been used since FY 85. A comparison of the number of Medicaid eligibles receiving cash assistance, by state and by eligibility group, reported by the two data sources for FY 92 is provided in Supplemental Tables 2S-1 and 2S-2.

The number of aged, blind, and disabled receiving SSI and/or state supplemental cash assistance payments at the end of each quarter of the fiscal year are obtained from the Social Security Bulletin. The quarterly numbers are averaged to obtain an estimate of the number of recipients of cash assistance payments throughout the year. Every state in the comparison set provides Medicaid coverage to persons receiving SSI. There are, however, some individuals who do not receive SSI but received monthly cash assistance from the state. For those individuals, the states are required to provide Medicaid coverage to individuals receiving mandatory state supplemental cash payments and have the option to provide Medicaid coverage to all or only selected groups of individuals receiving non-mandatory state cash payments. Comparing the numbers of individuals in each state who receive only state monthly cash assistance with the coverage options elected by each state, it seemed reasonable to assume that everyone listed as receiving only state supplemental cash payments is covered by Medicaid.

For AFDC recipients, the Office of Family Assistance provided us with the average of the number of cash recipients each month of the fiscal year as reported to them by the states.

In the sections that follow, we describe the methodology for estimating the per capita cost of a traditional Medicaid program in Arizona for aged eligibles, then for disabled eligibles, then for blind eligibles, and finally for AFDC eligibles. Additional detail, by state and type of service, on the development of these per capita costs is presented in Supplemental Tables 2S-3 through 2S-10.

Estimates of Medical Service Cost per Aged Eligible

In addition to the existence of a MMIS, state SSI eligibility policy was examined for comparability with Arizona in selecting the comparison states. When SSI was enacted in 1972, states had two options in setting eligibility policy for the SSI aged population. The first option was to either 1) extend coverage to all individuals eligible for federal SSI payments or 2) use a more restrictive standard. For those states that cover all SSI eligibles, there is a second option. They may elect to do their own eligibility determination or to have the federal government determine eligibility. Because Arizona covers all SSI eligibles and uses federal eligibility determination, the set of comparison states was confined to those that did the same. In addition, Washington and Missouri were excluded from this set because, when the set of comparison states was chosen, the Medicaid eligibility counts were considerably different from the counts reported for SSI.

Average monthly per capita costs for aged eligibles in the comparison set of states are $226.56 in FY 92 and $256.25 in FY 93 (see Table 2-3, row 1). These figures are not adjusted for either geographic variations in price and utilization or state variations in the percentage of eligibles with dual Medicare/Medicaid eligibility for the aged.

The geographical adjustment accounts for differences between Arizona and other states in the price and utilization of services and in the rural/urban distribution of eligibles. For each state, the adjustment was computed using Medicare indices for Part A and Part B services, weighted by the number of SSI aged eligibles in rural and urban areas of the state.[10]

The dual eligibility adjustment accounts for the proportion of SSI beneficiaries who are eligible for Medicare in addition to Medicaid. Because the Medicare program pays a substantial portion of the health care costs for such individuals, the Medicaid costs are much less than for those who are eligible for Medicare. The Medicare program has two parts. Part A covers inpatient hospital and other institutional services. Part B covers physician and other services. A Medicare beneficiary is covered under Part B if they pay, or the state pays on their behalf (known as "buying-in"), the monthly Part B premium ($31.80 in 1992 and $36.60 in 1993). The Part B monthly premium is approximately 25 percent of the actuarial value of Part B covered services. Therefore, the purchase of Part B coverage is a very good value for the state. If the state buys in its Medicare beneficiaries, Medicare will pay for all Part B Medicare-covered services. Medicaid costs will thus be lower because Medicaid will only be responsible for Medicare deductibles and

Table 2-3

MEAN COSTS PER MONTH FOR FISCAL YEARS 1992 AND 1993 OF A TRADITIONAL MEDICAID PROGRAM PER AGED ELIGIBLE IN COMPARISON STATES*

	FY 92	FY 93
States with MMIS that cover all SSI eligibles and use federal determination of SSI eligibility	$226.56	$256.25
States with MMIS that cover all SSI eligibles and use federal determination of SSI eligibility, adjusted for geographic variations and dual Medicare/Medicaid eligibility	256.52	287.10
Further adjustment by truncating per capita costs more than 1.5 standard deviations from the mean to 1.5 standard deviations	251.64	276.86
Further adjustment to incurred cost basis	257.93	283.78

Source: HCFA-64 and HCFA-2082 data from the comparison states.

* The comparison states were Alabama, Arkansas, California, Florida, Georgia, Iowa, Louisiana, Maine, Michigan, Mississippi, Montana, New Jersey, New Mexico, Pennsylvania, South Carolina, Tennessee, Texas, Vermont, West Virginia, and Wisconsin.

coinsurance, services not covered by Medicare, and portions of the bill for services above Medicare coverage limits. For FY 92 and FY 93, all aged SSI beneficiaries are assumed to be dually-eligible for Part B.

In contrast to the coverage of Part B services, the proportion of SSI aged beneficiaries who are covered by Part A of Medicare varies among states. For each state, an adjustment is made for the difference between the estimated proportion of Part A services that are reimbursable under Part A in that state and the estimated proportion in Arizona. This adjustment is made by applying a factor to the per capita costs for Part A expenses. In order to determine this factor, it is necessary to estimate the proportion of costs reimbursed by Medicare and the proportion of beneficiaries covered by Medicare. Based on data from the Office of the Actuary, it is estimated that Medicare would reimburse 90 percent of Part A expenses for a dually-eligible beneficiary.[11] For each state, the percentage of aged SSI eligibles with Part A Medicare coverage is estimated to be the sum of 1) the percentage of SSI cash recipients also receiving Social Security payments [i.e., Old-Age, Survivors and Disability Insurance (OASDI)] times the percentage of those aged SSI eligibles who were under age 65 in 1966 and 2) 100 percent times the percentage of those aged SSI eligibles who were aged 65 and over in 1966.[12] All U.S. citizens who were 65 or older in 1966 or who receive OASDI payments are eligible for Medicare. For each state, the percentage of aged SSI cash recipients also receiving OASDI payments is obtained from the Social Security Bulletin. After applying these adjustments, the resulting mean Medicaid cost per eligible, for a traditional program with the same proportion of dual eligibles as Arizona, was $256.52 in FY 92 and $287.10 in FY 93 (see Table 2-3).

To reduce the impact of outliers on the estimate of traditional Medicaid program costs in Arizona, per capita costs in states with costs more than 1.5 standard deviations from the mean are truncated to the value 1.5 standard deviations from the mean. A number of options with respect to truncation were examined and 1.5 standard deviations was selected in consultation with HCFA because it was the most conservative assumption. Truncation is performed both for differences larger and smaller than the mean. Thus, the largest per capita cost that is included in the average is 1.5 standard deviations greater than the mean. This truncation reduces the aged mean by 1.9 percent in FY 92 to $251.64 and by 3.6 percent in FY 93 to $276.86.[13]

The adjustment factor for the difference between cash payments and incurred expenditures is the average yearly lag time between the service date and the payment date multiplied by the yearly rate of expenditure growth for each category of beneficiary (aged, disabled, blind, and AFDC) in the comparison states. The rate of growth of Medicaid expenditures for the aged receiving cash assistance between FY 92 and FY 93 in the comparison states is 10 percent. Examination of the lag between date of service and date of payment indicates an average lag time of 3 months. Thus the adjustment factor calculated for FY 92 is .025 (.25 year [3 months divided by 12 months] x .10 = .025). Because data for FY 94 are not available at this time, the expenditure growth rate between FY 93 and FY 94 can not be determined. Thus, the same lag factor is used for FY 93. The final estimates of per capita costs on an incurred basis for aged eligibles are $257.93 for FY 92 and $283.78 for FY 93.

Estimates of Medical Service Cost per Disabled Eligible

State eligibility policy for the SSI aged population also applies to the disabled SSI population. Therefore, the comparison states were again restricted to those that used federal determination of SSI eligibility and that covered all SSI eligibles. Mean expenditures per eligible in these states were $427.71 in FY 92 and $456.28 in FY 93 (see Table 2-4, row 1).

The data for the disabled are adjusted using essentially the same methodology that is applied to the aged. Mean Medicaid expenditures per disabled per month are adjusted incorporating the rural/urban distribution of eligibles and for variation in medical care prices and utilization of services by beneficiaries between Arizona and the comparison states.

The per capita costs are also adjusted to reflect variations across states in the proportion of the disabled Medicaid eligibles enrolled in

Table 2-4

MEAN COSTS PER MONTH FOR FISCAL YEARS 1992 AND 1993 OF A TRADITIONAL MEDICAID PROGRAM PER DISABLED ELIGIBLE IN COMPARISON STATES*

	FY 92	FY 93
States with MMIS that cover all SSI eligibles and use federal determination of SSI eligibility	$427.71	$456.28
States with MMIS that cover all SSI eligibles and use federal determination of SSI eligibility, adjusted for geographic variations and dual Medicare/Medicaid eligibility	488.37	519.58
Further adjustment by truncating per capita costs more than 1.5 standard deviations from the mean to 1.5 standard deviations	483.30	508.62
Further adjustment to incurred cost basis	506.50	533.03

Source: HCFA-64 and HCFA-2082 data from the comparison states.

* The comparison states were Alabama, Arkansas, California, Florida, Georgia, Iowa, Louisiana, Maine, Michigan, Mississippi, Montana, New Jersey, New Mexico, Pennsylvania, South Carolina, Tennessee, Texas, Vermont, West Virginia, and Wisconsin.

Medicare. Separate adjustments are made for Part A and Part B services. Unlike the aged, who are all assumed eligible for Part B services, the proportion of the disabled eligible for Part B varies by state. Because those who become eligible for SSI disability face a two-year waiting period for Medicare eligibility, only a proportion of the SSI disabled who are receiving OASDI are eligible for Medicare. Based on data from the Social Security Bulletin, 83 percent of disabled workers receiving Social Security benefits are estimated to be eligible for Medicare.[14] Thus, in determining each state's adjustment factor for Part A and Part B services, the percentage of disabled SSI cash recipients covered by Medicare was estimated to be 83 percent of that state's percentage of disabled SSI cash recipients also receiving Social Security payments as listed in the Social Security Bulletin. In determining the adjustment factor for Part B services, it was estimated that 75 percent of Part B expenses would be covered by Medicare.[15] Traditional Medicaid cost per eligible per month for the same proportion of dual eligibles as Arizona is $488.37 in FY 92 and $519.58 in FY 93. The adjustment for outliers reduces the per capita costs one percent in FY 92 and two percent in FY 93. For disabled eligibles an adjustment factor of .048 is used to adjust to an incurred cost basis (yearly lag [.25 year] x expenditure increase FY 92 to FY 93 for the disabled in the comparison states [.193] = .048). After adjustments for outliers and the incurred cost basis, the final estimates of per capita costs for the disabled are $506.50 for FY 92 and $533.03 for FY 93.

Estimates of Medical Service Cost per Blind Eligible

The overall methodology for estimating the cost per SSI blind eligible is the same as that used for SSI aged and disabled eligibles. Mean expenditures per blind eligible in the SSI comparison states is $240.28 in FY 92 and $253.55 in FY 93 (see Table 2-5, row 1). Adjustment factors for dual eligibility for the blind were calculated using the same methodology as for the disabled. For each state, the percentage of blind SSI cash recipients covered by Medicare was estimated to be 83 percent of that state's percentage of blind SSI cash recipients also receiving OASDI payments as listed in the

Table 2-5

MEAN COSTS PER MONTH FOR FISCAL YEARS 1992 AND 1993 OF A TRADITIONAL MEDICAID PROGRAM PER BLIND ELIGIBLE IN COMPARISON STATES*

	FY 92	FY 93
States with MMIS that cover all SSI eligibles and use federal determination of SSI eligibility	$240.28	$253.55
States with MMIS that cover all SSI eligibles and use federal determination of SSI eligibility, adjusted for geographic variations and dual Medicare/Medicaid eligibility	280.29	292.10
Further adjustment by truncating per capita costs more than 1.5 standard deviations from the mean to 1.5 standard deviations	280.59	297.30
Further adjustment to incurred cost basis	284.80	301.76

Source: HCFA-64 and HCFA-2082 data from the comparison states.

* The comparison states were Alabama, Arkansas, California, Florida, Georgia, Iowa, Louisiana, Maine, Michigan, Mississippi, Montana, New Jersey, New Mexico, Pennsylvania, South Carolina, Tennessee, Texas, Vermont, West Virginia, and Wisconsin.

Social Security Bulletin. After adjustment for geographic and dual eligibility differences, the Medicaid cost per eligible per month was $280.29 for FY 92 and $292.10 for FY 93. An adjustment factor for cash to incurred costs of .015 was used for blind eligibles (yearly lag [.25 year] x expenditure increase FY 92 to FY 93 for the blind in the comparison states [.059] = .015). Adjustments for outliers and the incurred cost basis resulted in estimates of the per capita cost for the blind of $284.80 in FY 92 and $301.76 in FY 93.

Estimates of Medical Service Cost per AFDC Eligible

As with aged, disabled, and blind, a series of steps are taken to calculate the expected traditional Medicaid program cost per AFDC eligible. The first step is to select a set of comparison states with programs similar to Arizona's. The second step is to calculate per capita costs in those states. The third step is to adjust the per capita costs in the comparison states for geographic variations in price and utilization, for outliers, and for the difference between incurred costs and cash payments. Because only a very small number of the AFDC eligibles are also eligible for Medicare, no adjustment is done for dual Medicare eligibility.

Analysis is again restricted to those states with a MMIS. States have substantial discretion in setting Medicaid eligibility standards for the AFDC population. In particular, coverage of families with unemployed parents varies considerably by state. This can result in variation in the characteristics of the eligible population that may have a significant impact on the cost per eligible. Under the AHCCCS program, Arizona did not provide coverage to families with unemployed parents at the time the comparison states were selected. Information is not available on expenditure and utilization patterns for unemployed parents. Therefore, the comparison states are restricted to those that had eligibility standards similar to those used by AHCCCS. Mean Medicaid expenditures per eligible for the AFDC population in the comparison states was $122.41 in FY 92 and $125.28 in FY 93 (see Table 2-6, row 1).

Table 2-6

MEAN COSTS PER MONTH FOR FISCAL YEARS 1992 AND 1993 OF A TRADITIONAL MEDICAID PROGRAM PER AFDC ELIGIBLE IN COMPARISON STATES*

	FY 92	FY 93
States with MMIS that do not cover families with unemployed parents	$122.41	$125.28
States with MMIS that do not cover families with unemployed parents, adjusted for geographic variations	143.25	147.27
Further adjustment by truncating per capita costs more than 1.5 standard deviations from the mean to 1.5 standard deviations	140.71	143.33
Further adjustment to incurred cost basis	143.81	146.48

Source: HCFA-64 and HCFA-2082 data from the comparison states.

* The comparison states were Alabama, Florida, Idaho, Iowa, Louisiana, Mississippi, Montana, New Mexico, North Dakota, Oregon, South Carolina, Tennessee, Utah.

The per capita costs are adjusted for variation in medical care prices and utilization between Arizona and the comparison states. After these adjustments, the mean expenditure is $143.25 in FY 92 and $147.27 in FY 93. For AFDC eligibles, an adjustment factor for cash to incurred costs of .022 is used (yearly lag [.25 year] x expenditure increase FY 92 to FY 93 for AFDC beneficiaries in the comparison states [.089] = .022). After adjustments for outliers and the incurred cost basis, the final estimates of per capita costs for AFDC eligibles are $143.81 for FY 92 and $146.48 for FY 93.

Comparison of AHCCCS Program Costs with the Estimated Acute Care Costs of a Traditional Medicaid Program

Medical Service Costs

Table 2-7 compares increases in AHCCCS medical services costs with the increases that were experienced in traditional Medicaid programs during FY 92 and FY 93, and also over the period from FY 83 to FY 93, the first 11 years of the AHCCCS acute care program. For the first seven years of the program, the rate of increase in AHCCCS' costs was 26.5 percentage points less than traditional program cost increases. During the next two years, AHCCCS was again successful in holding program cost increases to less than traditional Medicaid increases. Thus, for the first nine years of the program, AHCCCS was able to constrain cost increases 44.1 percentage points below the projected cost increases of a traditional Medicaid program in Arizona. For the period from FY 83 to FY 91, the average annual increase in AHCCCS per capita cost was 6.8 percent, compared to 9.9 percent for a traditional Medicaid program.

As shown in Table 2-7, the increase in the AHCCCS average per capita cost from FY 91 to FY 92 was 11.4% higher than the increase in the traditional program per capita cost. In contrast, the rate of increase in the AHCCCS per capita cost from FY 90 to FY 91 (9.2%) was 11.6% lower than the rate of increase in the traditional per capita cost (20.8%). These results are due primarily to DSH payments starting in Arizona in FY 92. In FY 91 there were no DSH payments in Arizona, but there were DSH payments in many of the

Table 2-7

COMPARISON OF THE AHCCCS ACUTE PROGRAM COST INCREASES FY 83 TO FY 93 WITH ESTIMATES OF THE COST INCREASES OF A TRADITIONAL MEDICAID PROGRAM

	AFDC	Aged	Blind	Disabled	Weighted Average*
AHCCCS Program Cost Increases					
Incurred Program Outlays					
91-92	58.5%	44.3%	50.3%	76.1%	62.3%
92-93	6.8	9.4	16.3	34.3	14.9
91-93	69.2	57.9	74.7	136.5	86.4
83-91	378.5	182.4	69.0	175.3	284.6
83-93	709.7	345.9	196.1	551.2	617.0
Average Monthly per Capita Costs					
91-92	25.5	32.0	40.4	41.9	29.7
92-93	(1.4)	3.4	4.4	14.8	5.0
91-93	23.7	36.5	46.6	62.8	36.2
83-91	82.6	164.8	61.8	68.1	69.2
83-93	125.9	261.4	137.2	174.1	130.4
Retrospective Estimate of Average Monthly per Capita Cost Increases of a Traditional Medicaid Program					
91-92	13.6	20.5	N/A	28.6	18.3
92-92	1.9	10.0	N/A	5.2	5.3
91-93	15.7	32.6	N/A	35.3	24.5
83-91	116.2	214.5	N/A	152.9	113.3
83-93	150.2	316.3	N/A	242.4	165.6
Difference Between AHCCCS Program Cost Increase (Average Monthly per Capita Cost) and Increase of Traditional Medicaid Program (Retrospective Estimate)					
91-92	11.9	11.5	N/A	13.3	11.4
92-93	(3.3)	(6.6)	N/A	9.6	(0.3)
91-93	8.0	3.9	N/A	27.5	11.7
83-91	(33.6)	(49.7)	N/A	(84.8)	(44.1)
83-93	(24.3)	(54.9)	N/A	(68.3)	(35.2)

Source: AHCCCS Administration, HCFA-64 reports, and HCFA-2082 reports.

* Weighted to the Arizona distribution of beneficiaries by category of eligibility.

N/A: Not available.

comparison states in both FY 91 and FY 92. The effect of the DSH payments was to increase the AHCCCS costs by 10.5% in FY 92 and 11.6% in FY 93.

Administrative Costs

Table 2-8 presents data on administrative costs in the state Medicaid programs of the comparison states used in this report. The data on administrative and medical service costs are listed by state for both FY 92 and FY 93.

In FY 92, the administrative costs as a percent of medical service costs ranges from a low of 1.8% for New Jersey to a high of 10.1% for Oregon. The range for FY 93 is from 1.2% for New Jersey to 8.6% for Oregon. In aggregate, the administrative costs for the comparison states are 3.5% of medical service costs for both FY 90 and FY 91.

As discussed above, the administrative costs for the AHCCCS acute care program were 7.7 percent of medical service costs in FY 92 and 8.2 percent of medical service costs in FY 93. The source of administrative cost data for Arizona and the comparison states was the HCFA-64 report.

Acute Care Program Cost Comparison: AHCCCS vs. Traditional Medicaid Program

The calculation of the saving of the AHCCCS acute care program involves a comparison of incurred program cost with the estimated cost of a traditional Medicaid program in Arizona. However, this estimate can be made from several different perspectives. It can be made from the perspective of the program itself, from the perspective of HCFA, or from the perspective of the state and local governments in Arizona. The program perspective compares overall AHCCCS cost with what the cost of a traditional Medicaid program would have been in Arizona. The HCFA perspective compares the payments made by HCFA to Arizona with the HCFA share of the cost of a traditional Medicaid program in Arizona.

Table 2-8

ADMINISTRATIVE EXPENDITURES AS A PERCENT OF TOTAL MEDICAL EXPENDITURES BY STATE (in thousands)

	FY 92			FY 93		
	Total Administrative and Training*	Total Medical*	Percent	Total Administrative and Training*	Total Medical*	Percent
Alabama	$ 37,336	$ 1,500,360	2.5%	$ 37,016	$ 1,637,242	2.3%
Arkansas	34,782	931,338	3.7	37,492	1,031,148	3.6
California	507,310	10,992,356	4.6	611,660	13,538,038	4.5
Florida	148,534	4,149,525	3.6	147,288	4,948,988	3.0
Georgia	100,617	2,486,559	4.0	110,946	2,798,657	4.0
Iowa	34,983	903,581	3.9	40,415	987,200	4.1
Louisiana	52,388	2,816,067	1.9	62,754	3,493,823	1.8
Maine	24,411	748,368	3.3	28,661	855,860	3.3
Michigan	166,054	3,787,556	4.4	176,292	4,362,644	4.0
Mississippi	30,178	1,083,969	2.8	29,761	1,196,475	2.5
Montana	14,283	270,107	5.3	12,964	323,271	4.0
North Dakota	10,332	249,743	4.1	11,923	269,675	4.4
New Jersey	74,473	4,217,967	1.8	42,052	3,527,074	1.2
New Mexico	20,192	507,740	4.0	20,350	571,200	3.6
Oregon	81,054	804,777	10.1	81,746	955,605	8.6
Pennsylvania	159,572	5,999,154	2.7	183,985	5,612,714	3.3
South Carolina	51,467	1,550,613	3.3	71,661	1,682,379	4.3
Tennessee	53,609	2,441,730	2.2	39,546	2,675,390	1.5
Texas	222,786	6,262,241	3.6	287,439	7,118,558	4.0
Utah	27,717	421,552	6.6	30,242	477,624	6.3
Vermont	14,349	245,085	5.9	17,804	255,476	7.0
Wisconsin	53,861	2,010,697	2.7	59,155	2,114,971	2.8
West Virginia	25,571	954,274	2.7	31,291	1,200,412	2.6
Total	1,945,859	55,335,359	3.5	2,172,443	61,634,424	3.5

Source: Medicaid Financial Management Report, December 13, 1993, Medicaid Bureau of Quality Control, Health Care Financing Administration.

* HCFA-64 Line 6 (Current expenditures without adjustments).

The state and local perspective compares actual state and county costs with their share of the estimated cost of a traditional program in Arizona.

In previous reports, the financial performance of the program was evaluated according to both a prospective and retrospective standard. The prospective standard was based on the set of rules agreed to by HCFA and the State of Arizona in determining the federal capitation payments. For the first year of the AHCCCS program, this clearly was an appropriate standard, both because the parties agreed to it and because AHCCCS used it in determining its budget and policies. AHCCCS prepared financial projections and accepted capitation agreements with the plans on the basis of the prospectively-determined rates. Thus, the projected revenues were an important determinant of the cost of the program. But being prospective, this standard included estimates of actual costs that proved to be inaccurately projected (e.g., the expected inflation rate in the costs of Medicaid programs). As discussed previously, HCFA and Arizona agreed to change the basis of federal reimbursement from prospectively-determined capitation rates to the standard federal matching percentage of AHCCCS expenditures, effective October 1990. Thus, results according to the prospective standard are not included in this report.

The standard we will use in our estimates is the retrospective standard. The incurred cost of the program will be compared with a retrospective estimate of what a traditional Medicaid program would have cost in Arizona. This estimate is based on retrospective calculations of the average incurred per capita cost of Medicaid programs in other states for services included in Arizona's program. The retrospectively-determined rates are those based on the methodology for estimating the cost of a traditional program described earlier in this chapter.

In this section, we focus first on AHCCCS' medical service costs and compare these costs to estimates of the acute medical service costs of a traditional Medicaid program in Arizona. Comparisons are made from three perspectives: the program perspective, the HCFA perspective, and the Arizona perspective.

Next, we compare total AHCCCS medical and administrative costs to total costs for the acute portion of a traditional Medicaid program in Arizona. Finally, we summarize the results of the cost analysis of the AHCCCS acute care program for FY 92 and FY 93.

The Program Perspective: Total AHCCCS Cost vs. Estimated Total Cost of a Traditional Medicaid Program

To calculate the cost of a traditional Medicaid program, our estimate of the average acute medical service cost per Medicaid beneficiary by eligibility category (using the methodology discussed earlier in this chapter) was multiplied by the number of months of eligibility. There were 2,785,451 months of eligibility in FY 92 and 3,048,089 months in FY 93.

Tables 2-9 and 2-10 summarize AHCCCS acute program cost as compared to the estimated cost of a traditional Medicaid program in Arizona for FY 92 and FY 93, respectively. Total incurred program cost was $493.8 million for FY 92 and $567.3 million for FY 93.

The estimated cost of a traditional program for FY 92 would have been $554.8 million, or $61.0 million more than the total AHCCCS incurred program cost for medical services. In this case, the estimated savings is 11.0 percent of the cost of a traditional program. For FY 93, the estimated cost of a traditional program was $639.2 million, or $72.0 million higher than the total AHCCCS incurred program cost, with an estimated savings of 11.3 percent of the cost of a traditional program. It should be remembered that these estimates include disproportionate share hospital (DSH) payments for both Arizona and the comparison states. Arizona did not have DSH payment prior to FY 92.

The HCFA Perspective: HCFA AHCCCS Costs vs. Estimated HCFA Cost of a Traditional Medicaid Program

Tables 2-11 and 2-12 summarize HCFA medical service costs and savings for the AHCCCS program compared to a traditional Medicaid program in Arizona

Table 2-9

AHCCCS ACUTE PROGRAM MEDICAL SERVICE COSTS INCURRED AND ESTIMATED SAVINGS FOR FY 92 BY CATEGORY OF ELIGIBILITY

	AFDC	Aged	Blind	Disabled	FY 92 Total
Program Outlays Incurred (000's)	$324,244	$25,278	$ 2,127	$142,172	$493,821
Capitation Payments	237,022	17,985	1,518	93,735	350,260
Fee-for-Service Claims	57,287	644	159	14,282	72,372
Reinsurance Claims	4,268	86	57	9,873	14,284
Deferred Liability	4,674	0	0	142	4,816
Part B Premium	6	2,570	61	3,231	5,868
Disproportionate Share Hospital	21,401	4,060	332	21,140	46,933
Third Party Collections	(414)	(67)	0	(231)	(712)
Estimate of Traditional Program Costs (000's)	$328,177	$27,963	$ 1,792	$196,893	$554,825
Average Cost per Beneficiary per Month	$ 143.81	$257.93	$284.80	$ 506.50	$ 199.19
Months of Eligibility	2,282,015	108,412	6,291	388,733	2,785,451
Total Savings (000's)	$ 3,933	$ 2,685	$ (335)	$ 54,721	$ 61,004
Savings as Percent of Traditional Program Costs	1.20%	9.60%	(18.69%)	27.79%	11.00%

Source: AHCCCS Administration, HCFA-64 and HCFA-2082 data.

Table 2-10

AHCCCS ACUTE PROGRAM MEDICAL SERVICES COSTS INCURRED AND ESTIMATED SAVINGS FOR FY 93 BY CATEGORY OF ELIGIBILITY

	AFDC	Aged	Blind	Disabled	FY 93 Total
Program Outlays Incurred (000's)	$346,147	$27,659	$ 2,473	$190,974	$567,253
Capitation Payments	293,813	19,555	1,801	144,439	459,608
Fee-for-Service Claims	15,955	138	47	2,506	18,646
Reinsurance Claims	5,324	258	142	12,797	18,521
Deferred Liability	4,487	1	0	56	4,544
Part B Premium	9	3,158	76	4,228	7,471
Disproportionate Share Hospital	27,022	4,624	407	27,206	59,259
Third Party Collections	(463)	(75)	0	(258)	(796)
Estimate of Traditional Program Costs (000's)	$362,001	$32,557	$ 2,114	$242,541	$639,213
Average Cost per Beneficiary per Month	$ 146.48	$283.78	$301.76	$ 533.03	$ 209.71
Months of Eligibility	2,471,334	114,727	7,004	455,024	3,048,089
Total Savings (000's)	$ 15,854	$ 4,898	$ (359)	$ 51,567	$ 71,960
Savings as Percent of Traditional Program Costs	4.38%	15.04%	(16.98%)	21.26%	11.26%

Source: AHCCCS Administration, HCFA-64 and HCFA-2082 data.

Table 2-11

FEDERAL GOVERNMENT COST FOR MEDICAL SERVICES FOR AHCCCS ACUTE PROGRAM COMPARED WITH ESTIMATE OF TRADITIONAL MEDICAID PROGRAM COST FOR FY 92, BY CATEGORY OF ELIGIBILITY

	AFDC	Aged	Blind	Disabled	FY 92 Total
Estimate of Federal Savings (000's)*	$ 2,463	$ 1,681	$ (210)	$ 34,261	$ 38,195
Average Cost per Beneficiary per Month+	$ 143.81	$257.93	$284.80	$ 506.50	$ 199.19
Months of Federal Eligibility	2,282,015	108,412	6,291	388,733	2,785,451
Estimated Costs Incurred Under Traditional Program (000's)	$328,177	$27,963	$ 1,792	$196,893	$554,825
Federal Share (62.61%) (000's)	$205,472	$17,508	$ 1,122	$123,275	$347,377
Total HCFA Payment Incurred (000's)	$203,009	$15,827	$ 1,332	$ 89,014	$309,182
Estimated Federal Savings as Percent of Federal Share	1.20%	9.60%	(18.69%)	27.79%	11.00%

Source: AHCCCS Administration, HCFA-64 and HCFA-2082 data.

* Estimated federal savings are "Federal Share" minus "Total HCFA Payment Incurred."

+ Estimated average incurred cost per capita for comparable beneficiaries and benefits in comparable states.

Table 2-12

FEDERAL GOVERNMENT COST FOR MEDICAL SERVICES FOR AHCCCS ACUTE PROGRAM COMPARED WITH ESTIMATE OF TRADITIONAL MEDICAID PROGRAM COST FOR FY 93, BY CATEGORY OF ELIGIBILITY

	AFDC	Aged	Blind	Disabled	FY 93 Total
Estimate of Federal Savings (000's)*	$ 10,446	$ 3,227	$ (236)	$ 33,977	$ 47,414
Average Cost per Beneficiary per Month+	$ 146.48	$283.78	$301.76	$ 533.03	$ 209.71
Months of Federal Eligibility	2,471,334	114,727	7,004	455,024	3,048,089
Estimated Costs Incurred Under Traditional Program (000's)	$362,001	$32,557	$ 2,114	$242,541	$639,213
Federal Share (65.89%) (000's)	$238,522	$21,452	$ 1,393	$159,810	$421,177
Total HCFA Payment Incurred (000's)	$228,076	$18,225	$ 1,629	$125,833	$373,763
Estimated Federal Savings as Percent of Federal Share	4.38%	15.04%	(16.98%)	21.26%	11.26%

Source: AHCCCS Administration, HCFA-64 and HCFA-2082 data.

* Estimated federal savings are "Federal Share" minus "Total HCFA Payment Incurred."

+ Estimated average incurred cost per capita for comparable beneficiaries and benefits in comparable states.

for FY 92 and FY 93. Using the retrospective standard based on estimates of the cost of a traditional Medicaid program covering comparable beneficiaries for the same services, total HCFA payments in FY 92 ($309.2 million) are $38.2 million less than the federal share of the cost of a traditional program ($347.4 million). Thus, according to the retrospective standard for FY 92, HCFA saved 11.0 percent of the estimated cost of a traditional program in Arizona.

For FY 93, total HCFA payments ($373.8 million) are $47.4 million less than the federal share of traditional program costs ($421.2 million), with savings of 11.3 percent compared to the cost of a traditional program.

The Arizona Perspective: Arizona AHCCCS Costs vs. Estimated Arizona Cost of a Traditional Medicaid Program

Tables 2-13 and 2-14 present the experience of the AHCCCS program in FY 92 and FY 93 from the perspective of the state and county governments of Arizona. The tables show that when the federal payment is subtracted from the estimated incurred cost of the program for medical services, AHCCCS actually cost Arizona's governments $184.6 million in FY 92 and $193.5 million in FY 93 for acute care medical service costs of AFDC and SSI eligibles.

Arizona's outlays would have been $207.4 million in FY 92, resulting in savings of $22.8 million, or 11.0 percent of traditional program outlays. For FY 93, Arizona's costs were $24.5 million (11.3 percent) less than the cost of a traditional Medicaid program.

Comparison of AHCCCS Program Outlays and Traditional Program Costs, Including Administrative Expenses

In the previous section, we replicated the analysis conducted in prior reports by comparing the medical service costs of the AHCCCS program to the estimated medical service costs of the acute care portion of a traditional Medicaid program in Arizona. Table 2-15 compares AHCCCS-incurred program

Table 2-13

COST OF AHCCCS MEDICAL SERVICES IN THE ACUTE PROGRAM TO ARIZONA COMPARED WITH ESTIMATE OF TRADITIONAL MEDICAID PROGRAM COST FOR FY 92, BY CATEGORY OF ELIGIBILITY

(in thousands)

	AFDC	Aged	Blind	Disabled	FY 92 Total
Actual AHCCCS Program Outlays Incurred	$324,244	$25,278	$2,127	$142,172	$493,821
Federal Reimbursement	203,009	15,827	1,332	89,014	309,182
Arizona (State and Local) Share	121,235	9,451	795	53,158	184,639
Estimate of Traditional Program Costs	$328,177	$27,963	$1,792	$196,893	$554,825
Federal Reimbursement (62.61%)	205,472	17,508	1,122	123,275	347,377
Arizona Share (37.39%)	122,705	10,455	670	73,618	207,448
Total Savings	1,470	1,004	(125)	20,460	22,809
Savings as Percent of Arizona Share of Traditional Program Cost	1.20%	9.60%	(18.66%)	27.79%	11.00%

Source: AHCCCS Administration, HCFA-64 and HCFA-2082 data.

Table 2-14

COST OF AHCCCS MEDICAL SERVICES IN THE ACUTE PROGRAM TO ARIZONA COMPARED WITH ESTIMATE OF TRADITIONAL MEDICAID PROGRAM COST FOR FY 93, BY CATEGORY OF ELIGIBILITY

(in thousands)

	AFDC	Aged	Blind	Disabled	FY 93 Total
Actual AHCCCS Program Outlays Incurred	$346,147	$27,659	$2,473	$190,974	$567,253
Federal Reimbursement	228,076	18,225	1,629	125,833	373,763
Arizona (State and Local) Share	118,071	9,434	844	65,141	193,490
Estimate of Traditional Program Costs	362,001	32,557	2,114	242,541	639,213
Federal Reimbursement (65.89%)	238,522	21,452	1,393	159,810	421,177
Arizona Share (34.11%)	123,479	11,105	721	82,731	218,036
Total Savings	5,408	1,671	(123)	17,590	24,546
Savings as Percent of Arizona Share of Traditional Program Cost	4.38%	15.05%	(17.06%)	21.26%	11.26%

Source: AHCCCS Administration, HCFA-64 and HCFA-2082 data.

Table 2-15

COMPARISON OF AHCCCS ACUTE PROGRAM INCURRED OUTLAYS AND ESTIMATES OF TRADITIONAL PROGRAM COSTS FOR MEDICAL SERVICES, ADMINISTRATION, AND TOTAL COSTS BY FISCAL YEAR

(in thousands)

	Medical Services	Administration	Total
FY 88			
AHCCCS Outlays	$156,460	$15,177	$171,637
Estimate of Traditional Program Costs	170,883	8,544	179,427
Difference Between AHCCCS Outlays and Estimate of Traditional Program Costs			(7,790)
Difference as a Percentage of Estimated Traditional Program Costs			(4.34%)
FY 89			
AHCCCS Outlays	$180,424	$21,290	$201,714
Estimate of Traditional Program Costs	211,244	10,562	221,806
Difference Between AHCCCS Outlays and Estimate of Traditional Program Costs			(20,092)
Difference as a Percentage of Estimated Traditional Program Costs			(9.06%)
FY 90			
AHCCCS Outlays	$236,941	$23,931	$260,872
Estimate of Traditional Program Costs	263,976	12,935	276,911
Difference Between AHCCCS Outlays and Estimate of Traditonal Program Costs			(16,039)
Difference as a Percentage of Estimated Traditional Program Costs			(5.79%)

Table 2-15 (Concluded)

COMPARISON OF AHCCCS ACUTE PROGRAM INCURRED OUTLAYS AND ESTIMATES OF TRADITIONAL PROGRAM COSTS FOR MEDICAL SERVICES, ADMINISTRATION, AND TOTAL COSTS BY FISCAL YEAR

(in thousands)

	Medical Services	Administration	Total
FY 91			
AHCCCS Outlays	$304,247	$36,205	$340,452
Estimate of Traditional Program Costs	374,938	16,122	391,060
Difference Between AHCCCS Outlays and Estimate of Traditional Program Costs			(50,608)
Difference as a Percentage of Estimated Traditional Program Costs			(12.94%)
FY 92			
AHCCCS Outlays	$493,821	$38,024	$531,845
Estimate of Traditional Program Costs	554,825	19,419	574,244
Difference Between AHCCCS Outlays and Estimate of Traditional Program Costs			(42,399)
Difference as a Percentage of Estimated Traditional Program Costs			(7.38%)
FY 93			
AHCCCS Outlays	$567,253	$46,515	$613,768
Estimate of Traditional Program Costs	639,213	22,372	661,585
Difference Between AHCCCS Outlays and Estimate of Traditional Program Costs			(47,817)
Difference as a Percentage of Estimated Traditional Program Costs			(7.23%)

Source: AHCCCS Administration, HCFA-64 and HCFA-2082 data.

outlays and traditional program costs, including the estimated administrative costs of both programs. Because there were some minor revisions to the administrative costs for earlier years, revised results are included for FY 88 to FY 91, in addition to the results for FY 92 and FY 93.

For FY 92, AHCCCS had medical service costs of $493.8 million for the eligibles covered by this report. AHCCCS administrative costs were estimated at 7.7 percent of medical service costs (see Table 2-2), or $38.0 million. For a traditional Medicaid program, administrative costs were estimated at 3.5 percent of medical service costs (see Table 2-8) and added to the retrospective estimate of traditional program costs. According to the retrospective standard, total AHCCCS costs were lower by $42.4 million, or 7.4 percent of traditional program costs.

For FY 93, AHCCCS administrative costs were estimated at 8.2 percent of medical service costs. Total AHCCCS costs for FY 93 were $613.8 million. Total AHCCCS costs were $47.8 million (7.2 percent) lower than the cost of a traditional Medicaid program according to the retrospective standard.

As can be seen in Table 2-15, compared to Tables 2-9 and 2-10, the inclusion of administrative costs reduces the estimate of AHCCCS program savings, compared to analysis of medical service costs only. The higher level of AHCCCS administrative costs is attributable, in part, to the programmatic features and requirements of AHCCCS that differ from a traditional Medicaid program (data system requirements, competitive bidding and monitoring of prepaid health plans, quality assurance/utilization review requirements, etc.).

In summary, ascertaining whether the cost of the AHCCCS acute care program is higher or lower than the cost of a traditional Medicaid program, and by how much, depends on the methodology and data used for the analysis and the standards of comparison. Prior reports focused on comparison of medical service costs between AHCCCS and a traditional program for the first nine years, FY 83 to FY 91. This chapter has replicated the analysis of the prior reports for FY 92 and FY 93. In addition, we have compared total AHCCCS costs (medical and administrative) to the total costs of the acute care portion of a traditional Medicaid program.

AHCCCS continued to experience lower costs than the estimated costs for a traditional Medicaid program in Arizona. From the program perspective, AHCCCS' costs were lower than traditional program costs for both FY 92 and FY 93.

In addition to the generally favorable cost experience over the first 11 years of the program, AHCCCS was successful in containing cost increases below those experienced in the comparison states. However, for the two-year period FY 92 and FY 93, the average per capita cost increased 36.2% (from $136.68 per member per month in FY 91 to $186.10 per member per month in FY 93) in AHCCCS compared to a 24.5% increase (from $168.44 per member per month in FY 91 to $209.71 per member per month in FY 93) in traditional programs (see Table 2-7). As noted above, this result was contrary to the prior trend from FY 83 to FY 91 where AHCCCS consistently had lower rates of increase compared to a traditional program. For example, since the beginning of the program (FY 83) to FY 91, AHCCCS' average per capita cost increased 69.2% while the average per capita cost in the comparison states increased 113.3%, a reduction of 44.1% in the rate of increase. As discussed previously, the higher rate of increase for AHCCCS in FY 92 was primarily due to DSH payments starting in Arizona in FY 92, increasing the AHCCCS costs by 10.5% in FY 92 and 11.6% in FY 93.

From FY 83 to FY 93, the average per capita cost for AHCCCS increased 130% while the average per capita cost in the comparison states increased 166%, a reduction of 36% in the rate of increase. During this 11-year period, the average annual increase in AHCCCS per capita cost was 8.7%, compared to 10.3% for a traditional Medicaid program in Arizona.

Analysis of Acute Program Costs for SOBRA Beneficiaries

The analysis described above was based on data for AFDC and SSI beneficiaries. HCFA has also expressed interest in considering whether the savings appear to be similar for SOBRA beneficiaries. The SOBRA results are similar to the cost savings results for AFDC and SSI eligibles. The acute care cost analysis focused on the federal AFDC and SSI eligibility categories because these were the original categories for federal reimbursement at the beginning of the program in FY 83 and they continued to constitute the majority (74 percent) of federal eligibles through FY 93 (excluding Native Americans residing on reservations who were eligible for IHS services). The SOBRA program for pregnant women and children started in Arizona on January 1, 1988. There were 81,796 SOBRA eligibles in the AHCCCS acute care program on October 1, 1992, and they constituted 25 percent of all federal eligibles. SOBRA women and children are distinct rate code categories, and acute care health plans are paid a monthly capitation payment for each enrolled member. In addition, the health plan receives a supplemental SOBRA "kick" payment as compensation for each delivery. In FY 93 the average SOBRA monthly capitation payment was $97.05 for children and $112.03 for women. Total FY 93 SOBRA capitation payments were $105.2 million for children and $15.3 million for women. Supplemental "kick" payments for SOBRA women amounted to $62.6 million in FY 93.

Table 2-16 presents some limited results for SOBRA costs in Arizona compared to other state Medicaid programs. It should be noted that other states differ in SOBRA eligibility requirements and also in how they report SOBRA costs. Therefore, the results in Table 2-16 should be viewed with great caution.

Taking account of those caveats, Table 2-16 presents monthly SOBRA costs (for children, women, and total SOBRA eligibles) for Arizona, total United States, and the states that reported cost data for FY 92 and FY 93 (states with fewer than 1,000 SOBRA eligibles are not shown in Table 2-16). For FY 92 the AHCCCS program had monthly costs of $111.61 for children, $460.54 for women, and $174.81 for all SOBRA eligibles. The corresponding monthly costs for the total U.S. excluding Arizona were higher by 31% for children ($146.06), 3% for women ($473.60), and 26% for all SOBRA eligibles ($221.10).

Table 2-16

COMPARISON OF SOBRA COSTS PER MONTH FOR FY 92 AND FY 93: ARIZONA VS. OTHER STATES

	FY 92			FY 93		
	Child	Adult	Total	Child	Adult	Total
Arizona	$111.61	$460.54	$174.81	$122.48	$512.93	$176.47
U.S. Total	146.06	473.60	221.10	142.67	458.85	205.90
Alabama	179.77	455.55	230.36	152.75	506.30	205.65
Alaska	202.44	903.41	483.83	273.48	915.04	446.58
California	97.03	85.11	94.22	151.12	95.42	140.62
Colorado	230.20	515.69	326.29	254.82	751.75	509.40
Delaware	119.91	407.76	169.90	113.10	406.18	158.01
Florida	119.05	371.96	164.11	129.97	175.05	137.70
Georgia	142.89	723.74	269.79	134.97	697.29	249.24
Idaho	96.55	325.79	143.39	85.60	343.71	129.88
Kentucky	132.55	511.75	197.64	103.27	471.20	157.34
Louisiana	639.90	715.34	685.45	480.40	684.98	613.36
Massachusetts	205.65	189.36	201.06	192.56	187.62	191.75
Michigan	121.74	N/A	N/A	109.07	N/A	N/A
Missouri	136.50	456.14	189.98	123.32	452.68	175.72
Nebraska	175.79	N/A	N/A	211.76	N/A	N/A
New Jersey	195.62	1370.51	575.42	146.37	1152.95	357.45
New York	175.70	700.62	303.96	130.24	619.17	216.81
Ohio	117.24	355.56	170.60	121.59	428.84	176.48
Oklahoma	308.45	365.51	335.09	304.91	281.78	294.87
Oregon	276.19	381.48	333.28	247.96	393.24	319.90
South Carolina	293.62	760.39	406.46	266.60	679.38	363.56
South Dakota	74.52	243.34	109.03	65.56	276.91	102.88
Texas	86.82	322.42	129.10	143.27	442.89	322.54
Utah	129.39	435.09	315.10	70.95	99.29	84.85
Virginia	64.36	95.74	79.99	202.98	413.20	372.04
West Virginia	281.52	401.31	381.18	86.91	455.30	160.08
Wisconsin	85.17	331.86	172.06			

Source: HCFA-64, HCFA-2082.

N/A: Not Available.

The difference in monthly costs is smaller in FY 93 because the AHCCCS monthly costs increased compared to FY 92, whereas the U.S. monthly costs decreased in each category from FY 92 to FY 93. For SOBRA children in FY 93, the U.S. monthly costs ($142.67) were 16% higher than AHCCCS ($122.48). The U.S. monthly costs for women ($458.85) were 11% smaller than AHCCCS ($512.93). For all SOBRA eligibles, the U.S. costs ($205.90) were 17% higher than the comparable AHCCCS cost ($176.47). Thus, the SOBRA results are similar to the cost savings results for AFDC and SSI eligibles.

Long-Term Care Program Costs: ALTCS vs. Traditional Medicaid Program

This part of the chapter compares the actual cost incurred by the ALTCS program in FY 90, FY 91, FY 92 and FY 93 with an estimate of the cost that would have been incurred if a traditional Medicaid program had been implemented in Arizona. The actual cost incurred by ALTCS is taken from tabulations of the ALTCS cost items. The estimated cost of a traditional Medicaid program in Arizona is the average of the adjusted costs of a traditional Medicaid program in a group of comparison states. The adjustments take into account differences between each comparison state and Arizona. Adjustments were made for geographic differences, differences in dual Medicaid and Medicare eligibility, the effect of extreme cases, and the differences between a cash cost-accounting basis and an incurred cost-accounting basis.

The cost of providing long-term care services to a Medicaid population depends on: the percentage of that population that uses long-term care services and the cost per month of providing care to those users. This section will compare estimates of users, the cost per month, and the total cost experienced by ALTCS with the corresponding experience of traditional Medicaid programs in a set of comparison states. Medicaid program experience varies widely among the states; nevertheless, a comparison of ALTCS' experience with the average adjusted experience of the Medicaid programs in other states is useful as an indication of whether or not the cost of ALTCS is less than a traditional program.

The states in the comparison group are selected because of similarity of their Medicaid eligibility requirements with Arizona and the reliability and completeness of their data. For each fiscal year, these states had experience from more than 1.9 million member-months in which long-term care services were used.

The ALTCS program includes several experimental features designed to reduce program cost. These features include: the preadmission screening (PAS) process, case management, prepaid capitation arrangements with contractors, combining responsibility for long-term care and acute care services, and allowing the substitution of home and community-based (HCB) services for institutional services.

This report covers the second through fifth years of the ALTCS program: FY 90, FY 91, FY 92 and FY 93. The ALTCS program started on December 19, 1988 for mentally retarded/developmentally disabled (MR/DD) eligibles and on January 1, 1989 for elderly and physically disabled (EPD) eligibles. Thus, for FY 89, there were approximately nine months of program operation. The Second Outcome Report presented initial results for FY 89, FY 90 and FY 91. This initial analysis used a comparison group of six states. This report repeats the FY 90 analysis using a nine state comparison group. It also repeats the FY 91 analysis using a comparison group made up of 12 states. Results are also presented for FY 92 and FY 93. These results are also based on a comparison estimate developed from 12 comparison states.

ALTCS Program Costs

This section summarizes the costs of the ALTCS program. ALTCS program costs were obtained from AHCCCS, which administers the ALTCS program. They are reported on an incurred basis by date of service. Tables 2-17, 2-18, 2-19 and 2-20 summarize the ALTCS program costs for FY 90, FY 91, FY 92 and FY 93, respectively. ALTCS incurred costs for each fiscal year are presented separately for EPD and MR/DD eligibles, by category of eligibility (AFDC, SSI

Table 2-17

ALTCS INCURRED PROGRAM OUTLAYS FOR FY 90 BY CATEGORY OF ELIGIBILITY

(in thousands)

	AFDC	Aged	Blind	Disabled	Total
EPD	$266	$133,055	$459	$35,871	$169,651
Capitation Payments	146	108,086	239	25,192	133,663
Fee-for-service Claims	120	22,688	211	9,833	32,852
Reinsurance Claims	0	41	0	526	567
Part B Premiums	0	2,372	9	351	2,732
Third Party Collections	0	(132)	0	(31)	(163)
MR/DD	$16,101	$375	$451	$58,116	$75,044
Capitation Payments	15,807	372	451	57,598	74,229
Fee-for-service Claims	296	0	0	389	685
Reinsurance Claims	0	0	0	0	0
Part B Premiums	0	3	0	136	139
Third Party Collections	(2)	0	0	(7)	(9)
Total	$16,367	$133,430	$910	$93,987	$244,695
Capitation Payments	15,953	108,458	690	82,790	207,892
Fee-for-service Claims	416	22,688	211	10,222	33,537
Reinsurance Claims	0	41	0	526	567
Part B Premiums	0	2,375	9	487	2,871
Third Party Collections	(2)	(132)	0	(38)	(172)

Source: Finance Department, Division of Business, Finance and Research, AHCCCS Administration.

Table 2-18

ALTCS INCURRED PROGRAM OUTLAYS FOR FY 91 BY CATEGORY OF ELIGIBILITY (in thousands)

	AFDC	Aged	Blind	Disabled	Total
EPD	$692	$156,883	$699	$40,348	$198,622
Capitation Payments	387	146,351	573	34,494	181,805
Fee-for-service Claims	305	7,921	116	4,743	13,085
Reinsurance Claims	0	0	0	792	792
Part B Premiums	0	2,756	10	353	3,119
Third Party Collections	0	(145)	0	(34)	(179)
MR/DD	$16,066	$380	$1,173	$88,742	$106,361
Capitation Payments	15,999	377	965	88,622	105,963
Fee-for-service Claims	72	0	208	0	280
Reinsurance Claims	0	0	0	0	0
Part B Premiums	0	3	0	138	141
Third Party Collections	(5)	0	0	(18)	(23)
Total	$16,758	$157,263	$1,872	$129,090	$304,983
Capitation Payments	16,386	146,728	1,538	123,116	287,768
Fee-for-service Claims	377	7,921	324	4,743	13,365
Reinsurance Claims	0	0	0	792	792
Part B Premiums	0	2,759	10	491	3,260
Third Party Collections	(5)	(145)	0	(52)	(202)

Source: Finance Department, Division of Business, Finance and Research, AHCCCS Administration.

Table 2-19

ALTCS INCURRED PROGRAM OUTLAYS FOR FY 92
BY CATEGORY OF ELIGIBILITY
(in thousands)

	AFDC	Aged	Blind	Disabled	Total
EPD	$927	$184,631	$778	$45,948	$232,285
Capitation Payments	375	172,462	633	38,749	212,219
Fee-for-service Claims	176	6,772	116	5,221	12,286
Reinsurance Claims	362	0	0	655	1,017
Part B Premiums	0	2,783	17	670	3,470
Third Party Collections	0	(160)	0	(37)	(197)
DSH	14	2,774	12	690	3,490
MR/DD	$19,164	$450	$1,289	$102,460	$123,364
Capitation Payments	18,787	440	1,271	99,373	119,872
Fee-for-service Claims	114	0	0	1,552	1,666
Reinsurance Claims	0	0	0	0	0
Part B Premiums	0	4	0	174	178
Third Party Collections	(6)	0	0	(20)	(26)
DSH	269	6	18	1,381	1,674
Total	$20,091	$185,081	$2,067	$148,408	$355,649
Capitation Payments	19,162	172,902	1,904	138,122	332,091
Fee-for-service Claims	290	6,772	116	6,773	13,952
Reinsurance Claims	362	0	0	655	1,017
Part B Premiums	0	2,787	17	844	3,648
Third Party Collections	(6)	(160)	0	(57)	(223)
DSH	283	2,780	30	2,071	5,164

Source: Finance Department, Division of Business, Finance and Research, AHCCCS Administration.

Table 2-20

ALTCS INCURRED PROGRAM OUTLAYS FOR FY 93 BY CATEGORY OF ELIGIBILITY (in thousands)

	AFDC	Aged	Blind	Disabled	Total
EPD	$1,314	$208,352	$872	$59,485	$270,023
Capitation Payments	1,060	194,595	672	51,787	248,113
Fee-for-service Claims	97	6,913	170	5,387	12,568
Reinsurance Claims	138	0	0	555	693
Part B Premiums	0	3,769	18	891	4,678
Third Party Collections	0	(176)	0	(41)	(217)
DSH	19	3,251	12	906	4,183
MR/DD	$26,441	$577	$1,423	$116,266	$144,708
Capitation Payments	26,057	563	1,402	114,322	142,344
Fee-for-service Claims	2	0	0	12	14
Reinsurance Claims	0	0	0	0	0
Part B Premiums	0	5	0	234	239
Third Party Collections	(7)	0	0	(22)	(29)
DSH	389	9	21	1,720	2,140
Total	$27,755	$208,929	$2,295	$175,751	$414,731
Capitation Payments	27,117	195,158	2,074	166,109	390,457
Fee-for-service Claims	99	6,913	170	5,399	12,581
Reinsurance Claims	138	0	0	555	693
Part B Premiums	0	3,774	18	1,125	4,917
Third Party Collections	(7)	(176)	0	(63)	(246)
DSH	408	3,260	33	2,626	6,328

Source: Finance Department, Division of Business, Finance and Research, AHCCCS Administration.

aged, SSI blind, and SSI disabled), and by type of expenditure. The types of expenditure for the ALTCS program are:

- Capitation payments
- Fee-for-service claims
- Reinsurance claims
- Part B premiums
- Third-party recoveries
- Disproportionate share hospital payments
- Administrative costs

Capitation Payments

AHCCCS pays monthly capitation payments to the long-term care contractors for each ALTCS eligible enrolled with the contractor. The capitation payment for each eligible includes the cost of acute care services, long-term care services, case management, and the contractors' administrative expenses. The amount of the capitation payment varies by contractor. The Division of Developmental Disabilities (DDD) in the Arizona Department of Economic Security (DES) serves as the program contractor for MR/DD eligibles.

For FY 90, the EPD contractors and the counties that they served were: Maricopa County Long-Term Care for Maricopa County; Pima Health System for Pima County, Comprehensive AHCCCS Plan for Coconino County, and Ventana Health Systems for Mohave, La Paz, Yavapai, Graham, Greenlee, Navajo, Cochise, and Gila counties. Yuma and Pinal counties were not served by a program contractor in FY 90, but were covered on a fee-for-service basis by AHCCCS. For FY 91 all the previous contractors remained as participants. In addition, Arizona Physicians Independent Physicians' Association and Pinal County Long-Term Care were added as program contractors in Yuma County and Pinal County, respectively. The contractors and the counties that they served remained the same in FY 92 and FY 93.

The capitation payments for EPD and MR/DD eligibles were tabulated by AHCCCS for each fiscal year. For EPD eligibles, HCFA payments to AHCCCS were based on these tabulations. For MR/DD eligibles, HCFA's initial payments were based on interim capitation rates that were negotiated between Arizona and HCFA prior to the start of the program. These initial payments were adjusted to the actual ALTCS costs through a reconciliation process for FY 89 through FY 92. Starting in FY 93, there were fixed, prepaid capitation rates for MR/DD eligibles agreed to by HCFA and Arizona. The capitation payments for MR/DD eligibles shown in Tables 2-17 to 2-20 are based on the final audited costs and the reconciliation agreed to by HCFA and Arizona.

From FY 90 to FY 93, capitation payments for EPD eligibles increased from $133.7 million to $248.1 million. During that same time period, capitation payments for MR/DD eligibles increased from $74.2 million to $142.3 million.

Fee-for-Service Claims

Fee-for-service payments result from claims for program eligibles before they are enrolled with a contractor or from claims for program eligibles in counties without a program contractor. AHCCCS pays medical expenses incurred by program eligibles before they are enrolled with an EPD long-term care contractor on a fee-for-service basis. There are rarely fee-for-service payments for MR/DD eligibles because they become the responsibility of DES from the first day of their eligibility.

As discussed above, in FY 90 AHCCCS served as the program contractor for EPD eligibles in four rural counties without program contractors. All services used by ALTCS eligibles in these counties were paid on a fee-for-service basis. In FY 91, additional contractors entered the program and AHCCCS' fee-for-service counties were reduced to two rural counties (Apache and Santa Cruz). Total fee-for-service claims payments were $33.5 million in FY 90, $13.4 million in FY 91, $14.0 million in FY 92, and $12.6 million in FY 93.

Reinsurance Claims

AHCCCS provides reinsurance to long-term care contractors for ALTCS eligibles whose acute care medical expenses exceed specified thresholds in each program year. The services covered by the reinsurance program include acute inpatient hospitalizations, emergency services leading to an inpatient admission, kidney dialysis services not covered by Medicare, parenteral medication, chemotherapy, radiation therapy, and other services approved by the AHCCCS Director. Reinsurance payments are subject to an annual deductible and coinsurance that are the responsibility of the long-term care contractor. Payments for reinsurance claims for ALTCS eligibles were $567,000 in FY 90, $792,000 in FY 91, $1,017,000 in FY 92, and $693,000 in FY 93.

Part B Premiums

AHCCCS pays premiums for ALTCS eligibles who are also eligible for Part B of Medicare. As a result, Medicare pays the applicable Medicare benefit for all Part B covered services (primarily physician and outpatient services) used by ALTCS eligibles, thus reducing AHCCCS' responsibility for medical costs. AHCCCS is fully responsible for services covered by Medicaid but not by Medicare, and partially responsible (i.e., responsible for Medicare's cost-sharing) for services covered by both programs. The monthly Part B premium for each eligible was $28.60 in FY 90, $29.90 in FY 91, $31.80 in FY 92, and $36.60 in FY 93. Total Part B premiums paid by AHCCCS for ALTCS eligibles were $2.9 million in FY 90, $3.3 million in FY 91, $3.6 million in FY 92, and $4.9 million in FY 93.

Third-Party Recoveries

The Finance Department at AHCCCS is responsible for recovering funds from third parties who have liability for medical expenses incurred by ALTCS eligibles. Third-party recoveries were an estimated $172,000 in FY 90, $202,000 in FY 91, $223,000 in FY 92, and $246,000 in FY 93.

Disproportionate Share Hospital Payments

In FY 92 AHCCCS started making DSH payments to hospitals in Arizona that serve a disproportionate number of low-income patients. The DSH payments for ALTCS eligibles are estimated by multiplying total DSH payments by the percentage of total program inpatient expenditures which are for ALTCS eligibles. It is estimated that DSH payments for ALTCS eligibles amounted to $5.2 million in FY 92 and $6.3 million in FY 93. There were no DSH payments prior to FY 92.

Total ALTCS Outlays for Medical Care

In FY 90, ALTCS program outlays were $169.7 million for EPD eligibles and $75.0 million for MR/DD eligibles. Program outlays for EPD eligibles increased to $198.6 million in FY 91, $232.3 million in FY 92, and $270.0 million in FY 93. For MR/DD eligibles, program outlays increased to $106.4 million in FY 91, $123.4 million in FY 92, and $144.7 million in FY 93.[16]

Administrative Costs

AHCCCS reports its administrative expenses on the Form HCFA-64 for federal reimbursement purposes. These costs are allocated between the AHCCCS acute care program and the ALTCS program, as discussed in the previous section on acute care costs. The administrative costs of the program contractors are included in the capitation payments that are paid to them and are, therefore, not included in the figures reported by AHCCCS. AHCCCS administrative costs for the ALTCS program were $15.5 million in FY 90, $14.1 million in FY 91, $15.3 million in FY 92, and $16.9 million in FY 93. These amounts, expressed as a percentage of ALTCS medical service costs, are 8.1%, 4.4%, 4.4%, and 4.0%, respectively. The declining percentages reflect the rapid increase in medical service costs and the decline of administrative costs between FY 90 and FY 93 as the program shifted from a period of high start-up expenses to one of steady operation.

Cost of Long-Term Care under a Traditional Medicaid Program in Arizona

This section discusses the estimates of the cost of providing long-term care services in Arizona under a traditional Medicaid program for FY 90 through FY 93. The estimates are based on expenditures, numbers of eligibles, and long-term care utilization data from Medicaid programs in a set of comparison states and take into account not only the average cost per long-term care user, but also the prevalence of long-term care users among Medicaid recipients.

The method is composed of five steps:

(1) Estimates are made of the monthly cost per long-term care recipient for institutional care, home-health care, and acute care in each state in the comparison group.

(2) The monthly per capita costs derived in step (1) are adjusted to obtain an estimate of what the per capita costs would have been in Arizona. Adjustments are made for geographic differences in price and utilization, differences in dual Medicaid and Medicare eligibility, the effect of extreme cases, and differences between a cash and incurred cost accounting basis.

(3) The expected number of months that Medicaid eligibles would have used long-term care services in Arizona under a traditional Medicaid program is estimated from the "user ratio." The user ratio is a measure of the prevalence of long-term care users among Medicaid eligibles. It is the number of long-term care users (from SSI cash recipients and 300% of SSI eligibles) divided by the number of SSI cash recipients and is calculated for each state in the comparison group.

(4) The estimate of the medical costs that would have occurred in Arizona under a traditional Medicaid program is obtained by multiplying the average of the monthly per capita costs from step (2) and the average of the expected months of use of long-term care services from step (3).

(5) Administrative expenses are added to the comparison.

The cost of a traditional Medicaid program in Arizona is estimated separately for MR/DD and EPD eligibles. The separate analysis is important because these two groups of long-term care users receive fundamentally different levels of care. The state of Arizona has a separate agency (DES) that administers the program for the MR/DD. The federal reimbursement to Arizona is based on rates that are different for the MR/DD long-term care users than for the EPD long-term care users.

The estimates in this report show the costs separately for two categories of eligibility: the aged and non-aged. The non-aged include the eligibility categories of AFDC, SSI blind, and SSI disabled. There are so few users of long-term care services in the AFDC and SSI blind categories that they have been combined with the SSI disabled into a single non-aged group.

The comparison of ALTCS costs with the costs in other states is affected not only by differences in the eligibility requirements, but also by the characteristics of the programs. The ALTCS program was designed to be cost-effective and, thus, includes such features as a home and community-based services (HCBS) program, PAS, and a prospective payment method of reimbursing providers. In addition, it includes the cost of therapies in the per diem rates for institutional care. Some of the Medicaid programs in other states have characteristics similar to these "special features" of the ALTCS program. As of the end of FY 93, every other state had at least one 2176 Medicaid waiver program for HCB services. Many of these programs have some form of preauthorization or prescreening procedure. In addition, a majority of the states use some form of screening to determine eligibility for SNF and intermediate care facility (ICF) care, have prospective payment arrangements with nursing facilities, and include the cost of therapies in their per diem reimbursement of nursing homes. Arizona hopes that many of its special features will result in reduced cost. To the extent that other states incorporate some of these features into their Medicaid programs, it will be more difficult to use a comparison between ALTCS and other state programs to measure the effect of these special features on program costs.

Selection of the Comparison States

Selection criteria were established to determine the states in the comparison group. However, among the states that meet the selection criteria, eligibility requirements, specific services covered, and administrative policies differ and these factors can impact the cost and utilization of long-term care services. Eligibility for Medicaid is based on state-defined standards with regard to resources and income. States also control the number of Medicaid-certified nursing home beds available. Furthermore, individual states are responsible for the design and implementation of their 2176 waiver programs that provide HCBS care to individuals at risk of institutionalization. Consequently, the adjusted cost for long-term care in traditional Medicaid programs varies significantly among the states. Because of this variability, as many states as possible that were consistent with the selection criteria were included in the comparison group. The particular set of states that met the selection criteria will have an impact on the results. If a different set of states had met the selection criteria, the results could have been different. However, the average experience of the comparison states is our best estimate of the cost of a traditional program.

Three criteria are used to select the comparison states: 1) the similarity of the Medicaid eligibility requirements in the comparison states to those in Arizona, 2) the completeness of the available data, and 3) data quality.

The first criterion requires selecting comparison states that have eligibility requirements similar to Arizona's. Arizona has two groups in the ALTCS EPD program: 1) those eligible for SSI cash payments, and 2) those that qualify under the "special income level for the institutionalized." In this report, those who are eligible under the special income level will be referred to as the "300 percent of SSI eligibles."

When SSI was enacted in 1972, states were allowed a one-time option to use their then-current Medicaid standards for determining Medicaid eligibility for the aged, blind, and disabled, rather than extending eligibility to all SSI recipients. The reasoning for allowing this "more restrictive" option was to protect states against a dramatic increase in caseloads and Medicaid costs due to the enactment of SSI. Fourteen states currently use the more restrictive option. Because Arizona covers all SSI eligibles, states in the comparison group are restricted to those that also cover all SSI eligibles. The 14 states that do not extend Medicaid eligibility to all SSI recipients are: Connecticut, Hawaii, Illinois, Indiana, Minnesota, Missouri, Nebraska, New Hampshire, North Carolina, North Dakota, Ohio, Oklahoma, Utah, and Virginia.

All states provide Medicaid coverage to some nursing home residents who meet the categorical and asset requirements for SSI eligibles, but whose income exceeds the SSI limit. This coverage can be extended by 1) states electing a special income level to determine eligibility and/or 2) states establishing a medically needy eligibility category. By federal law, the special income level can be no more than 300 percent of the SSI income limit. Arizona does not provide Medicaid coverage through a medically needy category, but does extend eligibility under a special income level and has selected the maximum special income level of 300 percent of the SSI income limit.

The states selected for the comparison group should have eligibility requirements similar to Arizona. Because the medically needy category is identified separately, it is not necessary to exclude all states that provide medically needy coverage. Instead, the medically needy portion of the data can be excluded from the analysis.

It is, however, important to select states that extend eligibility to a special income level (i.e., states with 300 percent of SSI eligibles) for two reasons: first, to make the eligibles in the comparison states as similar to those in Arizona as possible, and second, to make the definition of the user ratio consistent between Arizona and the comparison states. The user ratio is the number of long-term care users (from both the SSI cash recipients and the 300 percent of SSI eligibles) divided by the number of SSI cash recipients. For this ratio to be consistent, the same income levels must be used in Arizona and each of the comparison states. Thus, seven additional states are excluded from the comparison group because they do not have a special income level for the institutionalized: California, Kansas, Massachusetts, Michigan, Montana, New York, and Wisconsin. Based on consideration of the first selection criterion, twenty-eight states are still considered for inclusion in the set of comparison states.

With respect to the second criterion, completeness of data, the comparison relies on identifying Medicaid dollars spent and months of eligibility coverage for those receiving long-term care services by the following categories: MR/DD aged, MR/DD non-aged, EPD aged, and EPD non-aged. Two data sources that provide detailed data on Medicaid expenditures, eligibility, and recipient information are: 1) the HCFA-2082 reports, and 2) the Medicaid Statistical Information System (MSIS) personal summary record files that are compiled by the HCFA Data Center from the detailed tape files submitted by the states. Only the MSIS files, however, report the data in the detail needed for this analysis.

The HCFA-2082 reports the detailed data in total for all persons eligible for Medicaid during the fiscal year by basis of eligibility status and by maintenance assistance status. In addition, a portion of these data are reported for those institutionalized at least 100 days. The MSIS files, however, contain one detailed record for each person reported to be eligible for Medicaid during the fiscal year. Data from the MSIS files can be totaled to obtain the HCFA-2082 reports. All states are required to file the HCFA-2082 reports, whereas participation by states in the MSIS project is voluntary. As of January 1992, 25 states were participating in the MSIS project with 21 states having their HCFA-2082 reports prepared by the MSIS system.

The first data source, the HCFA-2082 report, contains two sections (I and J) that provide detailed information on the number of recipients and Medicaid dollars spent for those receiving at least 100 days of institutional care during the fiscal year. However, those individuals receiving long-term home-health care, as well as those who received less than 100 days of institutional care (e.g., new long-term care enrollees and long-term care recipients who died), are not included. This group may also include individuals in mental health facilities. In addition, MR/DD and EPD individuals are not identified separately. The number of days of institutional care and the number of months of Medicaid eligibility are not shown separately on the HCFA-2082 reports only for those identified in Sections I and J. Thus, the HCFA-2082 reports do not contain much of the detailed data needed for the analysis in this report.

The MSIS file, however, contains information on an individual basis in sufficient detail to perform the analysis. Each individual record contains Medicaid dollars spent for each of 21 types of service, days of institutional care for each type of institution, number of home-health visits, and months of Medicaid eligibility during the fiscal year.

Of the twenty-eight remaining states, fourteen additional states are excluded because they do not participate in the MSIS project: Colorado, Florida, Idaho, Louisiana, Maryland, Mississippi, New Mexico, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, and West Virginia. In addition, MSIS data for Pennsylvania are not available prior to FY 91. Thus, based on consideration of the first and second selection criterion, the number of states that are still considered for inclusion in the set of comparison states is thirteen for FY 90 and fourteen for FY 91 through FY 93.

The third criterion for the selection of comparison states is quality of the data. Two of the remaining states, Alaska and Washington, are excluded from each year of the analysis because of data inconsistencies. For the State of Washington, expenditures for institutional care for the MR/DD population during FY 91 are reported to be approximately nine times higher on the HCFA-64 report than on the 2082 report and MSIS files. Also, expenditures for home-health waivers, which are more than 90 percent of home-health expenditures, are not reported on the MSIS files or 2082 reports. For the state of Alaska, the data are sparse. In addition, for the aged institutionalized in FY 91, the total number of days of institutional care reported as reimbursable exceeds the total number of Medicaid eligible days. Using the reported number of eligible days yields per capita cost approximately three times higher than the largest per capita cost in the other states.

For the first year of the analysis only (FY 90), two additional states, Kentucky and Wyoming, are excluded because of data inconsistencies. In

Kentucky during FY 90, more than 80 percent of the SNF expenditures are reported as expenditures for the medically needy category. This percentage is inconsistent with all future years (FY 91 through FY 93) in which the percentages are approximately 15 percent. The percentage of expenditures assigned to the medically needy category is important, because all data for this category are excluded from the analysis (Arizona has no medically needy program). Wyoming is excluded from the analysis for FY 90 because no data were reported for the MR/DD category.

Thus, for FY 90, the nine states that remain for comparison are: Alabama, Arkansas, Delaware, Georgia, Iowa, Nevada, New Jersey, and Vermont. For FY 91 through FY 93, the following three additional states are added to the comparison set: Kentucky, Pennsylvania, and Wyoming, increasing the total number of states in the comparison set for these years to twelve.

All of the comparison states have 2176 waiver programs for both their EPD and MR/DD populations. Institutional and noninstitutional services provided are thus similar in the comparison states to those services available in ALTCS. The comparison states do less preauthorization screening than exists in ALTCS. Most of the comparison states provide some screening before admission to their HCBS programs but the amount, on average, is less than in ALTCS. Six of the comparison states (Alabama, Arkansas, Georgia, Kentucky, Nevada, and New Jersey) require screening before entry to an ICF but six other states in the comparison group (Delaware, Iowa, Maine, Pennsylvania, Vermont, and Wyoming) do not; thus, institutional screening is also less for the comparison states than for ALTCS. Four comparison states (Georgia, Pennsylvania, Vermont, and Wyoming) include therapies in their daily rate. Although this will result in slightly larger comparison averages than would have existed if therapies had not been included, the use of therapies is not substantial and we do not believe it impacts the comparison.

Data for the States in the Comparison Set

Three data sources are used for the comparison: 1) MSIS files, 2) HCFA-64 reports, and 3) data provided by the HCFA Office of Medicaid Policy. This analysis disaggregates the population of long-term care users into subgroups. The MR/DD and EPD are analyzed separately, as are the institutionalized and the noninstitutionalized. Individual information from the MSIS files is used to define these groups.

Excluded from study in this report are individuals who use long-term care types of service (nursing home or home-health care) for short periods of time during recuperation from acute conditions. Such individuals are excluded from the ALTCS program, because ALTCS eligibility requires that long-term care services be necessary for more than 90 days. In order to get a comparison group that was as comparable as possible to ALTCS, we had to use somewhat arbitrary criteria, based on a "unit of service". A unit of service is defined as a day of institutional long-term care service or an HCBS visit.

All Medicaid eligibles in the MSIS files who used long-term care services during a year were summarized into four groups. The first three groups were considered to be comparable to ALTCS beneficiaries. The last group was not considered to be comparable. The four groups are:

(1) MR/DD Institutionalized - Medicaid participants who incurred expenditures for an intermediate care facility for the mentally retarded (ICF/MR) and either died during the year or used at least 60 units of long-term care (including ICF/MR institutional care and home-health visits).

(2) EPD Institutionalized - Medicaid participants who incurred expenditures for ICF (not ICF/MR) or SNF and either died during the year or used at least 60 units of long-term care [including ICF (not ICF/MR) and SNF institutional care and home-health visits].

(3) Significant Home-health Users - Medicaid participants who did not incur expenditures for ICF or SNF, but did incur expenditures for home-health care and either died during the year or used at least 60 home-health visits.

(4) Acute Care Users Receiving Minimal (less than 60 units of) Long-Term Care Services - All other Medicaid participants who incurred expenditures for a long-term care service. This group is assumed to have medical conditions requiring only acute care and the small amount of long-term care services that they received is considered to be related to those conditions.

In the analysis that follows, the significant home-health users (group 3) are divided into EPD and MR/DD beneficiaries. EPD totals are obtained by summing the EPD institutionalized (group 2) with the EPD portion of group 3, and MR/DD totals are obtained by summing the MR/DD institutionalized (group 1) with the MR/DD portion of group 3.

The quantity of 60 long-term care units is chosen somewhat arbitrarily. ALTCS requires eligibles to be at risk of institutionalization for at least 90 days during an episode of care. However, placement into the ALTCS program may occur before 90 days of service have actually been provided. In addition, actual long-term care use in any fiscal year may be less, because the episode may end (possibly due to death) near the beginning of the year or begin near the end of the year. Thus, using 90 long-term care units is too restrictive a criterion. Therefore, a smaller number — 60 units — is selected. Those long-term care users that died during the year are included in the first three groups regardless of the number of units of services that they used during the year.

In practical terms, the choice of using 60 units rather than 90 units makes little difference. There are very few records that would be associated with more than 60 units and less than 90 units. In addition, because date-of-death is frequently not coded, some of the records that fall into this category may be for individuals who are long-term care users and died early in the year.

Summary information was tabulated for each of the four groups by medical assistance status (i.e., categorically needy receiving cash assistance, categorically needy not receiving cash assistance, medically needy, and other) and by category of eligibility (i.e., aged, blind, disabled, and AFDC). The summary information included the number of days of Medicaid eligibility, the amount of Medicaid payments for 21 types of service (inpatient hospital, physician, ICF-other, etc.), the number of days for each kind of institutional care, and the number of home-health visits.

ALTCS eligibles can be in one of the following medical assistance statuses: 1) cash recipients (AFDC and SSI), classified in the MSIS file as "categorically needy receiving cash assistance," 2) 300 percent of SSI eligibles, classified in the MSIS files as "categorically needy not receiving cash assistance," or 3) "other." The ALTCS program does not extend coverage to the medically needy. Thus, in the comparison states, individuals whose eligibility is based on being medically needy are excluded from the analysis.

As of January, 1992, all states in the comparison group except for Arkansas and Pennsylvania were exempt from submitting the HCFA-2082 form. For the exempt states, the HCFA-2082 is tabulated from the MSIS files. Thus, for the exempt states, the total expenditures listed on the HCFA-2082 should match the totals tabulated from the MSIS files. As expected, total expenditures from the MSIS files and the amounts listed on the HCFA-2082 are extremely close (within 0.5 percent). For each state, a comparison of total expenditures between the HCFA-2082 reports and the MSIS files for each of the three main types of long-term care services is given in Supplemental Tables 2S-11, 2S-12, and 2S-13.

All states submit the HCFA-64 report containing expenditure amounts by type of service. Federal payments to the states are based on audited expenditures as reported on the HCFA-64 report. Differences are found in comparing the expenditures on the HCFA-64 with the tabulation of total expenditures on the MSIS files. A certain degree of difference is expected because the HCFA-64 reports include expenditure amounts and adjustments not allocated to individuals, as well as adjustments for such things as adjudication, uncashed checks, and third-party adjustments. All long-term care expenditures from the MSIS files are totaled by type of service and adjusted to match the totals in the HCFA-64 reports. A comparison of the total expenditures from the HCFA-64 reports, the HCFA-2082 reports, and the MSIS files for long-term care services is given in Supplemental Tables 2S-11, 2S-12, and 2S-13.

The MSIS expenditures by type of service are adjusted to match the HFCA-64 expenditures. As shown in Supplemental Tables 2S-11, 2S-12 and 2S-13, the

MSIS expenditures and HCFA-64 expenditures are usually very close, and only a small adjustment to expenditures is required. In some cases, however, there are larger differences resulting from states reporting expenditures differently by type of service on the two reports. In these cases, in addition to making an adjustment to expenditures, adjustments are also made to the days of care and the days of eligibility. If the expenditure adjustment for any type of service is greater than 125 percent of the total expenditures listed on the HCFA-64 report, then the days of care and the days of eligibility are increased by the ratio of total expenditures from the MSIS files to 125 percent of total expenditures from the HCFA-64 report. A similar adjustment is made when total expenditures are less than 75 percent of the total expenditures listed on the HCFA-64 report.

For the EPD institutionalized, this adjustment was applied to days institutionalized and days of eligibility for Georgia in FY 90, for Pennsylvania in FY 92, and for Wyoming in FY 93. For the MR/DD institutionalized, this adjustment was applied to days institutionalized and days of eligibility for Arkansas in all years and for Wyoming in FY 91 and FY 93. For significant home-health users, this adjustment was applied to visits and days of eligibility for Iowa in all years. In addition, the states of Arkansas, Delaware, Pennsylvania, and Wyoming do not appear to include those covered by home-health waivers in their MSIS files. Thus, in these states, the adjustment was made in order to create additional data records for those significant home-health users under the waiver program.

In the MSIS files, the data in the home-health service field include (or are adjusted to include) both services provided through waiver programs and those provided through regular Medicaid programs. The HCFA-64 reports identify expenditures for home-health services provided through waiver programs separately from home-health services provided through regular Medicaid programs. Therefore, the percentage of total home-health expenditures that are provided through waiver programs calculated from the HCFA-64 reports are used to disaggregate the home-health services expenditures data reported in the MSIS files into expenditures for the waivered programs and those for the regular Medicaid programs. For the remainder of the report, the service category called "home-health" will be defined as in the MSIS files (i.e., it will include care provided through waiver programs as well as home-health care provided through regular Medicaid programs).

For users of ICF care, the MSIS files indicate whether the beneficiary is an EPD or MR/DD beneficiary. However, for beneficiaries who use home-health care and no ICF care, the MSIS files do not indicate whether the beneficiary is an EPD or MR/DD beneficiary. Because our cost analysis is done separately for EPD and MR/DD beneficiaries, the data for significant home-health care users must be allocated between EPD and MR/DD beneficiaries. Data obtained from the HCFA Office of Medicaid Policy was used to estimate home-health care expenditures provided through the waiver programs for each of the following subgroups: EPD AFDC, EPD SSI aged, EPD SSI blind, EPD SSI disabled, MR/DD AFDC, MR/DD SSI aged, MR/DD SSI blind, and MR/DD SSI disabled. For each category of eligibility (AFDC, SSI aged, SSI blind, and SSI disabled), the home-health care expenditures provided through the regular Medicaid program are divided between those for EPD beneficiaries and those for MR/DD beneficiaries using the proportions of institutional care expenditures used by EPD and MR/DD beneficiaries, in that state. Finally, for each category of eligibility, the days of eligibility and the number of home-health visits are divided between the EPD and the MR/DD beneficiaries in the same proportion as are the home-health care expenditures for that state.

Cost of Medical Care for Long-Term Care Recipients

Expenditures and days of eligibility from the MSIS files were used to calculate the monthly cost of providing medical care (both long-term care and acute care) to long-term care recipients in each comparison state. This calculation was done separately for EPD aged, EPD non-aged, MR/DD aged, and MR/DD non-aged. The results of these calculations are shown in Tables 2-21 through 2-28.

The calculation involved dividing long-term care service expenditures by days of eligibility and converting the daily rate to a monthly rate. In some

Table 2-21

MONTHLY COST FOR LONG-TERM CARE RECIPIENTS IN TRADITIONAL MEDICAID PROGRAMS, BY STATE, FOR THE EPD AGED AND NON-AGED, FY 90

		Long-Term Care			
	Acute	SNF/ICF	HCBS	Total	Total
Aged					
Alabama	$128.76	$ 730.19	$ 97.03	$ 827.22	$ 955.98
Arkansas	131.58	589.72	68.77	658.49	790.07
Delaware	115.27	1,662.75	91.24	1,753.99	1,869.26
Georgia	153.50	806.70	70.91	877.61	1,031.11
Iowa	182.58	768.84	8.59	777.43	960.01
Maine	165.30	1,581.96	69.63	1,651.59	1,816.89
Nevada	191.64	1,179.50	64.98	1,244.47	1,436.12
New Jersey	159.45	1,828.62	106.38	1,935.00	2,094.45
Vermont	154.23	1,360.56	37.27	1,397.83	1,552.06
Unadjusted Mean	153.59	1,167.65	68.31	1,235.96	1,389.55
Non-Aged					
Alabama	$ 234.21	$ 702.44	$177.59	$ 880.03	$1,114.24
Arkansas	216.39	872.79	72.26	945.05	1,161.45
Delaware	437.73	1,792.78	278.39	2,071.16	2,508.89
Georgia	351.23	685.57	179.68	865.25	1,216.48
Iowa	382.37	858.16	52.41	910.58	1,292.95
Maine	488.83	1,690.61	275.61	1,966.22	2,455.05
Nevada	1,012.30	1,608.31	105.60	1,713.91	2,726.21
New Jersey	671.02	2,165.17	525.32	2,690.49	3,361.51
Vermont	522.38	256.44	411.07	667.51	1,189.85
Unadjusted Mean	479.61	1,181.36	230.88	1,412.24	1,891.85

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

Table 2-22

MONTHLY COST FOR LONG-TERM CARE RECIPIENTS IN TRADITIONAL MEDICAID PROGRAMS, BY STATE, FOR THE EPD AGED AND NON-AGED, FY 91

		Long-Term Care			
	Acute	SNF/ICF	HCBS	Total	Total
Aged					
Alabama	$158.40	$ 950.94	$ 86.73	$1,037.66	$1,196.06
Arkansas	152.65	666.12	74.13	740.24	892.90
Delaware	151.93	1,688.21	190.66	1,878.87	2,030.80
Georgia	187.69	900.00	76.50	976.50	1,164.19
Iowa	227.22	891.97	8.37	900.35	1,127.56
Kentucky	212.14	1,007.55	70.55	1,078.10	1,290.24
Maine	207.72	1,986.27	71.32	2,057.58	2,265.30
Nevada	197.49	1,305.89	75.41	1,381.30	1,578.79
New Jersey	209.95	2,068.85	124.77	2,193.62	2,403.56
Pennsylvania	222.93	1,935.75	.66	1,936.42	2,159.34
Vermont	187.24	1,219.01	87.89	1,306.90	1,494.14
Wyoming	165.79	1,094.25	2.24	1,096.49	1,262.28
Unadjusted Mean	190.10	1,309.57	72.44	1,382.00	1,572.10
Non-Aged					
Alabama	$ 309.32	$ 838.50	$189.97	$1,028.47	$1,337.79
Arkansas	266.39	931.29	72.86	1,004.15	1,270.54
Delaware	906.80	1,563.91	283.76	1,847.67	2,754.47
Georgia	439.10	867.73	165.91	1,033.64	1,472.74
Iowa	464.43	962.36	55.13	1,017.49	1,481.92
Kentucky	476.52	997.84	426.09	1,423.93	1,900.45
Maine	671.96	1,966.55	410.01	2,376.55	3,048.51
Nevada	1,174.14	1,496.44	157.17	1,653.61	2,827.75
New Jersey	896.06	2,393.89	614.27	3,008.16	3,904.22
Pennsylvania	406.26	2,290.28	107.37	2,397.66	2,803.92
Vermont	522.58	314.62	303.58	618.20	1,140.78
Wyoming	843.28	1,025.98	67.60	1,093.58	1,936.86
Unadjusted Mean	614.74	1,304.12	237.81	1,541.93	2,156.66

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

Table 2-23

MONTHLY COST FOR LONG-TERM CARE RECIPIENTS IN TRADITIONAL MEDICAID PROGRAMS, BY STATE, FOR THE EPD AGED AND NON-AGED, FY 92

		Long-Term Care			
	Acute	SNF/ICF	HCBS	Total	Total
Aged					
Alabama	$199.81	$1,241.53	$ 88.17	$1,329.70	$1,529.51
Arkansas	176.54	732.35	114.10	846.45	1,022.99
Delaware	159.30	1,757.45	197.98	1,955.43	2,114.73
Georgia	201.54	1,018.79	79.39	1,098.18	1,299.72
Iowa	241.81	909.98	12.01	921.99	1,163.80
Kentucky	274.16	1,128.66	71.01	1,199.67	1,473.83
Maine	238.90	2,158.41	98.36	2,256.77	2,495.67
Nevada	278.92	1,638.54	90.48	1,729.02	2,007.94
New Jersey	199.43	1,967.94	136.14	2,104.08	2,303.51
Pennsylvania	269.40	2,580.12	1.54	2,581.66	2,851.06
Vermont	201.93	1,620.73	85.15	1,705.88	1,907.81
Wyoming	166.34	1,574.64	8.62	1,583.26	1,749.59
Unadjusted Mean	217.34	1,527.43	81.91	1,609.34	1,826.68
Non-Aged					
Alabama	$ 428.34	$ 962.59	$233.25	$1,195.83	$1,624.18
Arkansas	356.44	998.87	128.68	1,127.55	1,483.98
Delaware	1,007.26	1,466.13	422.49	1,888.63	2,895.88
Georgia	479.03	1,017.31	183.12	1,200.42	1,679.46
Iowa	588.16	1,027.94	81.40	1,109.34	1,697.50
Kentucky	655.63	1,228.34	564.29	1,792.63	2,448.25
Maine	872.33	1,848.96	497.02	2,345.98	3,218.31
Nevada	2,187.21	1,821.64	295.91	2,117.55	4,304.76
New Jersey	1,046.14	1,953.58	535.00	2,488.58	3,534.72
Pennsylvania	575.79	2,884.46	195.66	3,080.13	3,655.91
Vermont	576.41	714.11	847.47	1,561.58	2,137.99
Wyoming	764.66	1,443.32	173.91	1,617.23	2,381.89
Unadjusted Mean	794.78	1,447.27	346.52	1,793.79	2,588.57

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

Table 2-24

MONTHLY COST FOR LONG-TERM CARE RECIPIENTS IN TRADITIONAL MEDICAID PROGRAMS, BY STATE, FOR THE EPD AGED AND NON-AGED, FY 93

		Long-Term Care			
	Acute	SNF/ICF	HCBS	Total	Total
Aged					
Alabama	$193.08	$1,273.79	$ 77.04	$1,350.83	$1,543.91
Arkansas	197.54	811.01	147.98	958.99	1,156.53
Delaware	183.81	1,774.44	212.21	1,986.64	2,170.45
Georgia	221.80	1,064.22	72.97	1,137.18	1,358.99
Iowa	274.67	963.66	14.88	978.54	1,253.21
Kentucky	265.30	1,213.26	74.10	1,287.36	1,552.67
Maine	240.05	2,147.73	74.64	2,222.37	2,462.42
Nevada	246.09	1,798.30	76.49	1,874.79	2,120.88
New Jersey	323.70	2,182.76	165.57	2,348.33	2,672.04
Pennsylvania	340.09	2,710.82	2.14	2,712.96	3,053.05
Vermont	159.79	2,008.49	29.54	2,038.03	2,197.82
Wyoming	179.11	1,281.08	12.79	1,293.87	1,472.99
Unadjusted Mean	235.42	1,602.46	80.03	1,682.49	1,917.91
Non-Aged					
Alabama	$ 699.34	$ 939.79	$198.43	$1,138.22	$1,837.56
Arkansas	402.69	1,008.14	166.11	1,174.25	1,576.94
Delaware	901.27	1,129.28	483.37	1,612.65	2,513.92
Georgia	484.64	1,078.84	173.32	1,252.16	1,736.80
Iowa	558.40	1,018.95	90.53	1,109.48	1,667.88
Kentucky	590.05	1,151.67	609.53	1,761.20	2,351.25
Maine	996.45	2,086.87	552.02	2,638.90	3,635.34
Nevada	1,993.12	1,840.50	324.15	2,064.65	4,057.77
New Jersey	1,512.09	1,872.39	614.98	2,487.38	3,999.47
Pennsylvania	613.36	2,946.02	248.42	3,194.44	3,807.81
Vermont	589.82	740.62	511.34	1,251.96	1,841.77
Wyoming	673.01	1,179.56	343.40	1,522.96	2,195.97
Unadjusted Mean	834.52	1,407.72	359.63	1,767.35	2,601.87

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

Table 2-25

MONTHLY COST FOR LONG-TERM CARE RECIPIENTS IN TRADITIONAL MEDICAID PROGRAMS, BY STATE, FOR THE MR/DD AGED AND NON-AGED, FY 90

		Long-Term Care			
	Acute	ICF/MR	HCBS	Total	Total
Aged					
Alabama	\$153.63	\$1,288.61	\$291.46	\$1,580.07	\$1,733.70
Arkansas	112.37	1,747.76	189.67	1,937.42	2,049.79
Delaware	184.01	1,486.82	344.15	1,830.97	2,014.97
Georgia	168.82	2,434.06	191.27	2,625.33	2,794.15
Iowa	0.00	0.00	0.00	0.00	0.00
Maine	191.80	1,982.36	478.06	2,460.42	2,652.21
Nevada	0.00	0.00	0.00	0.00	0.00
New Jersey	244.01	1,960.99	748.74	2,709.74	2,953.75
Vermont	212.08	240.61	259.02	499.63	711.71
Unadjusted Mean*	180.96	1,591.60	357.48	1,949.08	2,130.04
Non-Aged					
Alabama	\$ 197.09	\$1,404.41	\$ 316.28	\$1,720.69	\$1,917.79
Arkansas	234.43	2,066.75	167.52	2,234.26	2,468.70
Delaware	282.29	1,974.50	476.04	2,450.54	2,732.83
Georgia	269.37	2,150.23	262.57	2,412.80	2,682.17
Iowa	336.32	3,429.68	95.05	3,524.73	3,861.05
Maine	343.17	2,748.70	830.44	3,579.14	3,922.31
Nevada	1,065.53	2,757.22	402.66	3,159.88	4,225.42
New Jersey	386.23	2,854.85	1,173.97	4,028.82	4,415.05
Vermont	687.85	1,272.14	751.20	2,023.34	2,711.19
Unadjusted Mean	422.48	2,295.39	497.30	2,792.69	3,215.17

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

* Mean averaged over non-zero values.

Table 2-26

MONTHLY COST FOR LONG-TERM CARE RECIPIENTS IN TRADITIONAL MEDICAID PROGRAMS, BY STATE, FOR THE MR/DD AGED AND NON-AGED, FY 91

		Long-Term Care			
	Acute	ICF/MR	HCBS	Total	Total
Aged					
Alabama	$165.49	$1,364.74	$275.09	$1,639.82	$1,805.31
Arkansas	131.50	1,486.21	201.47	1,687.68	1,819.18
Delaware	201.00	1,804.14	666.50	2,470.64	2,671.63
Georgia	148.27	2,295.57	190.62	2,486.19	2,634.46
Iowa	218.76	4,440.12	47.19	4,487.30	4,706.06
Kentucky	169.75	1,365.63	410.58	1,776.21	1,945.96
Maine	238.07	1,956.20	476.88	2,433.08	2,671.14
Nevada	0.00	0.00	0.00	0.00	0.00
New Jersey	289.15	2,143.93	899.10	3,043.02	3,332.17
Pennsylvania	233.97	2,014.36	213.47	2,227.82	2,461.79
Vermont	232.22	478.26	286.81	765.07	997.30
Wyoming	358.93	0.00	150.99	150.99	509.91
Unadjusted Mean*	217.01	1,759.01	347.15	2,106.17	2,323.18
Non-Aged					
Alabama	$ 251.08	$1,572.84	$ 324.83	$1,897.66	$2,148.74
Arkansas	306.80	1,918.44	184.68	2,103.11	2,409.92
Delaware	724.56	2,066.63	622.77	2,689.39	3,413.95
Georgia	373.44	2,574.34	241.90	2,816.24	3,189.68
Iowa	360.87	3,834.94	84.31	3,919.25	4,280.13
Kentucky	224.51	1,890.12	845.12	2,735.24	2,959.75
Maine	538.82	2,539.43	801.20	3,340.63	3,879.45
Nevada	646.94	2,717.27	453.59	3,170.86	3,817.80
New Jersey	522.36	2,949.29	1,311.21	4,260.51	4,782.87
Pennsylvania	277.45	2,389.87	500.33	2,890.20	3,167.65
Vermont	1,034.84	1,248.73	765.59	2,014.33	3,049.17
Wyoming	881.71	1,484.98	177.59	1,662.57	2,544.27
Unadjusted Mean	511.95	2,265.57	526.09	2,791.67	3,303.61

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

* Mean averaged over non-zero values.

Table 2-27

MONTHLY COST FOR LONG-TERM CARE RECIPIENTS IN TRADITIONAL MEDICAID PROGRAMS, BY STATE, FOR THE MR/DD AGED AND NON-AGED, FY 92

		Long-Term Care			
	Acute	ICF/MR	HCBS	Total	Total
Aged					
Alabama	$221.87	$1,621.67	$ 288.06	$1,909.73	$2,131.60
Arkansas	166.63	1,261.49	263.08	1,524.57	1,691.20
Delaware	239.53	2,160.96	689.73	2,850.69	3,090.22
Georgia	307.60	1,991.67	241.93	2,233.60	2,541.21
Iowa	199.61	5,873.59	95.25	5,968.84	6,168.44
Kentucky	281.98	984.09	403.85	1,387.94	1,669.92
Maine	300.49	3,647.23	465.41	4,112.64	4,413.13
Nevada	0.00	0.00	0.00	0.00	0.00
New Jersey	293.92	1,679.40	679.12	2,358.53	2,652.45
Pennsylvania	290.07	1,868.43	212.07	2,080.51	2,370.58
Vermont	259.90	528.03	514.18	1,042.22	1,302.11
Wyoming	622.65	0.00	1,503.25	1,503.25	2,125.90
Unadjusted Mean*	289.48	1,965.14	486.90	2,452.05	2,741.52
Non-Aged					
Alabama	$ 352.96	$1,829.50	$ 345.79	$2,175.29	$2,528.25
Arkansas	384.60	1,559.61	271.41	1,831.02	2,215.62
Delaware	724.21	2,157.07	618.80	2,775.87	3,500.07
Georgia	475.04	2,455.84	343.04	2,798.89	3,273.92
Iowa	462.76	3,699.85	115.88	3,815.73	4,278.49
Kentucky	303.13	1,712.98	1,032.42	2,745.40	3,048.53
Maine	746.05	2,641.34	1,024.97	3,666.31	4,412.35
Nevada	1,227.99	3,607.29	589.71	4,197.00	5,425.00
New Jersey	948.72	2,268.36	1,001.23	3,269.58	4,218.31
Pennsylvania	421.39	2,281.01	595.89	2,876.90	3,298.29
Vermont	670.72	1,599.64	1,795.01	3,394.65	4,065.38
Wyoming	114.43	320.11	960.71	1,280.82	2,395.25
Unadjusted Mean	652.67	2,177.72	724.57	2,902.29	3,554.96

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

* Mean averaged over non-zero values.

Table 2-28

MONTHLY COST FOR LONG-TERM CARE RECIPIENTS IN TRADITIONAL MEDICAID PROGRAMS, BY STATE, FOR THE MR/DD AGED AND NON-AGED, FY 93

		Long-Term Care			
	Acute	ICF/MR	HCBS	Total	Total
Aged					
Alabama	$210.42	$ 953.74	$281.23	$1,234.97	$1,445.40
Arkansas	202.95	1,343.59	363.82	1,707.41	1,910.36
Delaware	257.55	1,733.80	765.96	2,499.77	2,757.32
Georgia	192.86	1,585.68	233.06	1,818.74	2,011.59
Iowa	390.45	4,069.02	38.89	4,107.91	4,498.36
Kentucky	262.80	1,020.67	406.06	1,426.73	1,689.53
Maine	443.64	7,173.06	282.77	7,455.83	7,899.47
Nevada	0.00	0.00	0.00	0.00	0.00
New Jersey	501.14	1,758.64	781.75	2,540.39	3,041.52
Pennsylvania	354.75	1,727.64	271.24	1,999.11	2,353.86
Vermont	259.42	330.81	562.43	893.25	1,152.67
Wyoming	342.44	312.87	346.66	659.53	1,001.97
Unadjusted Mean*	310.76	2,000.89	393.99	2,394.88	2,705.64
Non-Aged					
Alabama	$ 660.66	$1,198.34	$ 360.41	$1,558.75	$2,219.41
Arkansas	500.67	1,665.44	382.03	2,047.47	2,548.14
Delaware	830.75	1,750.40	766.40	2,516.80	3,347.55
Georgia	535.20	2,318.63	365.44	2,684.07	3,219.27
Iowa	493.27	3,621.38	133.71	3,755.09	4,248.36
Kentucky	362.34	1,730.03	1,059.88	2,789.91	3,152.25
Maine	1,063.11	2,505.78	1,286.45	3,792.23	4,855.34
Nevada	1,538.23	4,247.69	607.95	4,855.63	6,393.86
New Jersey	1,141.42	2,163.85	1,084.14	3,247.99	4,389.41
Pennsylvania	395.28	2,354.76	768.37	3,123.13	3,518.42
Vermont	605.82	777.05	2,259.10	3,036.15	3,641.97
Wyoming	773.10	636.91	991.79	1,628.70	2,401.80
Unadjusted Mean	741.65	2,080.86	838.80	2,919.66	3,661.31

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

* Mean averaged over non-zero values.

of the states, the home-health care expenditures for long-term care recipients (MR/DD institutionalized, EPD institutionalized, and significant home-health users) are much less than the amount of home-health care expenditures estimated as long-term care in the acute care analysis. Because we believed that the estimate in the acute care analysis was more accurate, we adjusted the data for the long-term care recipients to the estimate in the acute care analysis.

The number of days of eligibility for long-term care services for the EPD institutionalized (group 2) is obtained for each individual by taking the lower of: 1) the sum of the number of days of ICF care plus the number of days of inpatient hospital care plus the number of home-health visits, or 2) the total days of Medicaid eligibility. The "LTC proportion" is defined as the proportion of total days of Medicaid eligibility that are long-term care days. For the EPD significant home-health care users (EPD beneficiaries in group 3), the number of eligible long-term care days is estimated by multiplying the total days of Medicaid eligibility by the "LTC proportion" for the EPD institutionalized. For the MR/DD institutionalized (group 1) and MR/DD significant home-health users (MR/DD beneficiaries in group 3), the days of eligibility for long-term care services is calculated in a similar manner as described for the EPD beneficiaries, except that the number of days of ICF/MR care is substituted for the number of days of ICF care.

Acute care costs are calculated separately for the three groups (the MR/DD institutionalized, EPD institutionalized, and the significant home-health users). The monthly cost per eligible for each of these three groups is shown in Supplemental Tables 2S-14, 2S-15, 2S-16, and 2S-17. The acute care costs for the EPD beneficiaries given in Tables 2-21 to 2-24 are the weighted average of the monthly acute care cost for the EPD institutionalized group and for the EPD significant home-health user group, where the weights are the number of days of eligibility for long-term care services estimated above. The acute care costs for the MR/DD beneficiaries given in Tables 2-25 to 2-28 are calculated in a similar manner.

The total number of long-term care user months divided between those institutionalized during the year and those receiving significant home-health care are given in Supplemental Tables 2S-18, 2S-19, 2S-20, and 2S-21.

Long-Term Care User Ratio

Estimating the cost of a traditional Medicaid program in Arizona requires estimates of both the cost per long-term care user and the proportion of all Medicaid eligibles that use long-term care services. The proportion of all eligibles that use long-term care services varies significantly by state. This could result from differences in the design and administration of Medicaid programs among states. It could also stem from differences among states in the availability of institutional beds and the attitudes of beneficiaries and their families toward institutionalization.

One measure of the prevalence of long-term care use among Medicaid eligibles is the ratio of the number of months of Medicaid long-term care use to the "potential" number of months of Medicaid eligibility, where the "potential" number of months of eligibility includes, in addition to the months of eligibility for all Medicaid eligibles, the months of potential eligibility for those individuals in the state between 100 percent and 300 percent of SSI that meet all Medicaid eligibility requirements except for the need for institutional care. These people need to be included in the number of potentially eligible in those states that extend eligibility to 300 percent of SSI for those in need of institutionalization. Unfortunately, there are no reliable data on the number of such individuals.

Another measure of the prevalence of long-term care use among Medicaid eligibles is the ratio of the number of months of Medicaid long-term care eligibility for those using long-term care services to the number of months of SSI eligibility. This ratio has a numerator that includes person-months both for individuals who are between 300 percent of the SSI income level and for those below the SSI income level, while the denominator includes only the person-months of eligibility for those whose income is below the SSI income level. This ratio has the advantages that both the numerator and denominator are based on accurate data and that the ratio gives a good indication of the relative utilization of long-term care services among states. This ratio is referred to as the "user ratio" in this report and is calculated separately for the aged and the non-aged. The denominator for the non-aged is the person-months for the SSI disabled. In addition to the SSI disabled, the non-aged group also includes the AFDC and the SSI blind, but the person-years of eligibility for users of long-term care services by these groups is negligible. The long-term care user ratio and the number of cash assistance months for each state in the comparison set are given in Supplemental Tables 2S-18, 2S-19, 2S-20, and 2S-21.

Estimates of Administrative Expenses

There is considerable interest in the potential for PAS, case management, and provider capitation payment arrangements to reduce medical service costs. However, incorporation of these mechanisms affects administrative costs, often increasing them.

Our comparison between ALTCS and a traditional Medicaid program takes into account both medical service costs and administrative costs. During the initial years of operation of the ALTCS program, this comparison is complicated by the existence of administrative start-up expenses that are incurred under any new program, but are difficult to estimate. Over time, the start-up costs will diminish, and the level of administrative costs for the program will stabilize.

The HCFA-64 forms contain information on administrative expenditures in each state. Table 2-29 shows administrative expenditures expressed as a percent of medical care expenditures (acute care and long-term care expenditures combined) in the 12 states used in the ALTCS cost comparison (9 states in FY 90). Data are not available on the administrative cost for long-term care recipients separately from acute care only recipients.

Table 2-29

ADMINISTRATIVE EXPENDITURES AS A PERCENT OF MEDICAL CARE EXPENDITURES IN TRADITIONAL MEDICAID PROGRAMS, BY STATE, FOR FY 90, FY 91, FY 92 AND FY 93

(in thousands)

	Administrative and Training	Medical	Percent
FY 90			
Alabama	$ 25,845	$ 803,688	3.22%
Arkansas	28,325	618,179	4.58
Delaware	8,891	125,922	7.06
Georgia	92,667	1,566,007	5.92
Iowa	27,674	642,771	4.31
Maine	19,884	437,833	4.54
Nevada	10,829	149,865	7.23
New Jersey	55,336	2,374,439	2.33
Vermont	12,812	153,624	8.34
Total	282,263	6,872,328	4.11
FY 91			
Alabama	$ 34,420	$1,055,501	3.26%
Arkansas	26,971	731,871	3.68
Delaware	10,403	185,295	5.61
Georgia	105,274	1,973,623	5.33
Iowa	33,251	790,999	4.20
Kentucky	40,994	1,508,231	2.72
Maine	22,400	589,195	3.80
Nevada	12,673	186,553	6.79
New Jersey	66,762	3,101,965	2.15
Pennsylvania	144,475	4,072,730	3.55
Vermont	13,571	197,185	6.88
Wyoming	5,995	93,043	6.44
Total	517,189	14,486,191	3.57

Table 2-29 (Concluded)

ADMINISTRATIVE EXPENDITURES AS A PERCENT OF MEDICAL CARE EXPENDITURES IN TRADITIONAL MEDICAID PROGRAMS, BY STATE, FOR FY 90, FY 91, FY 92 AND FY 93

(in thousands)

	Administrative and Training	Medical	Percent
FY 92			
Alabama	$ 37,336	$1,500,360	2.49%
Arkansas	34,782	931,338	3.73
Delaware	13,645	215,629	6.32
Georgia	100,617	2,486,559	4.05
Iowa	34,983	903,581	3.87
Kentucky	46,864	1,830,439	2.56
Maine	24,411	748,368	3.26
Nevada	14,466	371,681	3.89
New Jersey	74,473	4,217,967	1.77
Pennsylvania	159,572	5,999,154	2.66
Vermont	14,349	245,085	5.85
Wyoming	7,041	120,591	5.83
Total	562,539	19,570,752	2.87
FY 93			
Alabama	$ 37,016	$1,637,242	2.26%
Arkansas	37,492	1,031,148	3.64
Delaware	14,078	252,993	5.56
Georgia	110,946	2,798,657	3.96
Iowa	40,415	987,120	4.09
Kentucky	51,998	1,863,697	2.79
Maine	28,661	855,860	3.35
Nevada	14,761	423,447	3.49
New Jersey	42,052	3,527,074	1.19
Pennsylvania	183,985	5,612,714	3.28
Vermont	17,804	255,476	6.97
Wyoming	8,152	134,924	6.04
Total	587,360	19,280,352	3.03

Source: HCFA-64 reports.

Administrative expenses averaged 4.1%, 3.6%, 2.9% and 3.0% of the medical expenditures in these states for FY 90, FY 91, FY 92 and FY 93, respectively.

Adjustments to Daily Costs in Comparison States to Obtain Expected Costs in Arizona

The unadjusted means presented in Tables 2-30 through 2-37 are the actual average costs per month for those receiving long-term care in the comparison states. These numbers must be adjusted to estimate what a traditional Medicaid program would have cost in Arizona. To obtain the desired estimates, the actual average costs are adjusted for: 1) geographic differences in costs between each state and Arizona, 2) differences in the percentage eligible for Medicare in each state and Arizona, 3) the impact of outliers, and 4) the difference between costs reported on an incurred basis and on a cash basis. Each of these adjustments and their effect on average monthly costs are discussed below.

Geographic Differences

Geographic differences account for a significant portion of the variation in monthly costs among the states. The acute care component of the costs was adjusted using the geographic adjustment described in the acute care section of this chapter. It accounts for differences in both price and utilization of services.[17] For long-term care services, no adjustment is made for differences in utilization patterns. For institutional care, no such adjustment is needed because the unit of measure for utilization is one day of care. For home-health care, the overall cost of services rendered (including the frequency of services) is a major component being analyzed, and therefore, an adjustment that would remove the differences in utilization is not desired.

A consideration in designing an appropriate price adjustment for the long-term care component of the costs is that the price paid by the Medicaid program is routinely less than the price paid by other payers. These

Table 2-30

ESTIMATED MEAN MONTHLY COSTS FOR LONG-TERM CARE EPD RECIPIENTS IN A TRADITIONAL MEDICAID PROGRAM BY TYPE OF CARE, FY 90

	Acute	Long-Term Care			Total
		SNF/ICF	HCBS	Total	
Aged					
Unadjusted Mean	$153.59	$1,167.65	$68.31	$1,235.83	$1,389.55
Adjusted Mean					
(1) Geographical and Dual Eligibility	169.70	1,226.18	72.69	1,298.87	1,468.58
(2) Adjustments in (1) plus truncation of extreme values	170.08	1,226.18	74.60	1,300.77	1,470.85
(3) Adjustments in (1) and (2) plus shift from cost to incurred basis	173.34	1,294.84	78.77	1,373.62	1,546.96
Non-Aged					
Unadjusted Mean	$479.61	$1,181.36	$230.88	$1,412.24	$1,891.85
Adjusted Mean					
(1) Geographical and Dual Eligibility	522.95	1,241.01	236.17	1,477.18	2,000.12
(2) Adjustments in (1) plus truncation of extreme values	509.45	1,251.90	236.17	1,488.07	1,997.52
(3) Adjustments in (1) and (2) plus shift from cost to incurred basis	529.16	1,290.71	243.49	1,534.20	2,063.36

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

Table 2-31

ESTIMATED MEAN MONTHLY COSTS FOR LONG-TERM CARE EPD RECIPIENTS IN A TRADITIONAL MEDICAID PROGRAM BY TYPE OF CARE, FY 91

		Long-Term Care			
	Acute	SNF/ICF	HCBS	Total	Total
Aged					
Unadjusted Mean	$190.10	$1,309.57	$72.44	$1,382.00	$1,572.10
Adjusted Mean					
(1) Geographical and Dual Eligibility	210.48	1,382.72	76.96	1,459.69	1,670.16
(2) Adjustments in (1) plus truncation of extreme values	209.21	1,364.58	74.10	1,438.68	1,647.89
(3) Adjustments in (1) and (2) plus shift from cost to incurred basis	213.23	1,442.36	78.33	1,520.68	1,733.91
Non-Aged					
Unadjusted Mean	$614.74	$1,304.12	$237.81	$1,541.93	$2,156.66
Adjusted Mean					
(1) Geographical and Dual Eligibility	654.29	1,372.89	248.91	1,621.80	2,276.09
(2) Adjustments in (1) plus truncation of extreme values	646.07	1,390.66	247.04	1,637.70	2,283.76
(3) Adjustments in (1) and (2) plus shift from cost to incurred basis	671.07	1,450.46	257.66	1,708.12	2,379.19

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

Table 2-32

ESTIMATED MEAN MONTHLY COSTS FOR LONG-TERM CARE EPD RECIPIENTS IN A TRADITIONAL MEDICAID PROGRAM BY TYPE OF CARE, FY 92

	Acute	Long-Term Care			Total
		SNF/ICF	HCBS	Total	
Aged					
Unadjusted Mean	$217.34	$1,527.43	$81.91	$1,609.34	$1,826.68
Adjusted Mean					
(1) Geographical and Dual Eligibility	245.85	1,619.17	87.71	1,706.89	1,952.73
(2) Adjustments in (1) plus truncation of extreme values	245.02	1,605.12	85.72	1,690.85	1,935.87
(3) Adjustments in (1) and (2) plus shift from cost to incurred basis	251.15	1,630.81	87.10	1,717.90	1,969.05
Non-Aged					
Unadjusted Mean	$794.78	$1,447.27	$346.52	$1,793.79	$2,588.57
Adjusted Mean					
(1) Geographical and Dual Eligibility	842.97	1,536.84	368.24	1,905.08	2,748.05
(2) Adjustments in (1) plus truncation of extreme values	792.40	1,503.46	354.52	1,857.98	2,650.38
(3) Adjustments in (1) and (2) plus shift from cost to incurred basis	830.43	1,551.57	365.86	1,917.44	2,747.87

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

Table 2-33

ESTIMATED MEAN MONTHLY COSTS FOR LONG-TERM CARE EPD RECIPIENTS IN A TRADITIONAL MEDICAID PROGRAM BY TYPE OF CARE, FY 93

	Acute	Long-Term Care			Total
		SNF/ICF	HCBS	Total	
Aged					
Unadjusted Mean	$235.42	$1,602.46	$80.03	$1,682.49	$1,917.91
Adjusted Mean					
(1) Geographical and Dual Eligibility	258.15	1,694.19	85.59	1,779.78	2,037.94
(2) Adjustments in (1) plus truncation of extreme values	258.15	1,683.21	83.18	1,766.39	2,024.54
(3) Adjustments in (1) and (2) plus shift from cost to incurred basis	264.61	1,710.14	84.51	1,794.65	2,059.26
Non-Aged					
Unadjusted Mean	$834.52	$1,407.72	$359.63	$1,767.35	$2,601.87
Adjusted Mean					
(1) Geographical and Dual Eligibility	880.46	1,495.64	382.71	1,878.34	2,758.80
(2) Adjustments in (1) plus truncation of extreme values	843.88	1,459.28	378.28	1,837.55	2,681.43
(3) Adjustments in (1) and (2) plus shift from cost to incurred basis	884.38	1,505.97	390.38	1,896.35	2,780.74

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

Table 2-34

ESTIMATED MEAN MONTHLY COSTS FOR LONG-TERM CARE MR/DD RECIPIENTS IN A TRADITIONAL MEDICAID PROGRAM BY TYPE OF CARE, FY 90

		Long-Term Care			
	Acute	ICF/MR	HCBS	Total	Total
Aged					
Unadjusted Mean	$180.96	$1,591.60	$357.48	$1,949.08	$2,130.04
Adjusted Mean					
(1) Geographical and Dual Eligibility	201.55	1,713.01	365.54	2,078.54	2,280.09
(2) Adjustments in (1) plus truncation of extreme values	206.46	1,713.01	365.54	2,078.54	2,285.00
(3) Adjustments in (1) and (2) plus shift from cost to incurred basis	210.42	1,808.93	386.01	2,194.94	2,405.36
Non-Aged					
Unadjusted Mean	$422.48	$2,295.39	$497.03	$2,792.69	$3,215.17
Adjusted Mean					
(1) Geographical and Dual Eligibility	489.56	2,486.76	509.01	2,995.78	3,485.34
(2) Adjustments in (1) plus truncation of extreme values	471.69	2,452.79	509.01	2,961.80	3,433.49
(3) Adjustments in (1) and (2) plus shift from cost to incurred basis	489.94	2,528.83	524.79	3,053.62	3,543.56

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

Table 2-35

ESTIMATED MEAN MONTHLY COSTS FOR LONG-TERM CARE MR/DD RECIPIENTS IN A TRADITIONAL MEDICAID PROGRAM BY TYPE OF CARE, FY 91

	Acute	Long-Term Care			Total
		ICF/MR	HCBS	Total	
Aged					
Unadjusted Mean	$217.01	$1,759.01	$347.15	$2,106.17	$2,323.18
Adjusted Mean					
(1) Geographical and Dual Eligibility	243.06	1,910.03	359.15	2,269.17	2,512.23
(2) Adjustments in (1) plus truncation of extreme values	248.33	1,807.92	357.25	2,165.16	2,413.50
(3) Adjustments in (1) and (2) plus shift from cost to incurred basis	253.10	1,910.97	377.61	2,288.58	2,541.68
Non-Aged					
Unadjusted Mean	$511.95	$2,265.57	$526.09	$2,791.67	$3,303.61
Adjusted Mean					
(1) Geographical and Dual Eligibility	593.71	2,452.82	546.75	2,999.57	3,593.28
(2) Adjustments in (1) plus truncation of extreme values	551./8	2,384.34	542.89	2,927.23	3,479.01
(3) Adjustments in (1) and (2) plus shift from cost to incurred basis	573.13	2,486.87	566.23	3,053.11	3,626.24

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

Table 2-36

ESTIMATED MEAN MONTHLY COSTS FOR LONG-TERM CARE MR/DD RECIPIENTS IN A TRADITIONAL MEDICAID PROGRAM BY TYPE OF CARE, FY 92

		Long-Term Care			
	Acute	ICF/MR	HCBS	Total	Total
Aged					
Unadjusted Mean	$289.48	$1,965.14	$486.90	$2,452.05	$2,741.52
Adjusted Mean					
(1) Geographical and Dual Eligibility	342.21	2,150.86	525.28	2,676.14	3,018.35
(2) Adjustments in (1) plus truncation of extreme values	335.63	1,993.29	478.85	2,472.14	2,807.77
(3) Adjustments in (1) and (2) plus shift from cost to incurred basis	344.02	2,025.18	486.52	2,511.69	2,855.72
Non-Aged					
Unadjusted Mean	$652.67	$2,117.72	$724.57	$2,902.29	$3,554.96
Adjusted Mean					
(1) Geographical and Dual Eligibility	719.00	2,357.15	773.25	3,130.40	3,849.40
(2) Adjustments in (1) plus truncation of extreme values	718.15	2,358.21	742.10	3,100.31	3,818.46
(3) Adjustments in (1) and (2) plus shift from cost to incurred basis	752.62	2,433.67	765.84	3,199.52	3,952.14

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

Table 2-37

ESTIMATED MEAN MONTHLY COSTS FOR LONG-TERM CARE MR/DD RECIPIENTS IN A TRADITIONAL MEDICAID PROGRAM BY TYPE OF CARE, FY 93

		Long-Term Care			
	Acute	ICF/MR	HCBS	Total	Total
Aged					
Unadjusted Mean	$310.76	$2,000.89	$393.99	$2,394.88	$2,705.64
Adjusted Mean					
(1) Geographical and Dual Eligibility	348.77	2,186.49	413.92	2,600.41	2,949.18
(2) Adjustments in (1) plus truncation of extreme values	353.30	1,981.49	418.62	2,400.36	2,753.66
(3) Adjustments in (1) and (2) plus shift from cost to incurred basis	362.14	2,013.44	425.32	2,438.76	2,800.90
Non-Aged					
Unadjusted Mean	$741.65	$2,080.86	$836.80	$2,919.66	$3,661.31
Adjusted Mean					
(1) Geographical and Dual Eligibility	812.71	2,258.19	894.02	3,152.21	3,964.92
(2) Adjustments in (1) plus truncation of extreme values	796.68	2,194.68	845.66	3,040.34	3,837.03
(3) Adjustments in (1) and (2) plus shift from cost to incurred basis	834.93	2,264.91	872.72	3,137.63	3,972.56

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

discounts are reflected in the actual unadjusted monthly costs presented above. In order to exclude from the adjustment differences in the discount obtained by traditional Medicaid programs, the price adjustment used takes account of the general cost level of providing long-term care services in each state and does not include an adjustment for the differences in the price paid by Medicaid. It is assumed that the general cost level of providing long-term care services can be measured by a combination of the average wage of non-professional health care workers and the average wage of all workers. Data on the average wage of non-professional health care workers in each state are obtained from the 1990 through 1993 Current Population Surveys. Because these data have limitations when state-specific analysis is done and overall average wages affect the wages of specific industries, data on the average wage of all workers in each state as reported to the Social Security Administration in 1990 are also used to determine geographic indices for the adjustment.[18]

Differences in Medicare Eligibility

The monthly costs are further adjusted to take into account the variation in the percentage of Medicaid eligibles who are also eligible for Medicare. These beneficiaries are referred to as "dually eligible" beneficiaries. All such eligibles are automatically covered by Part A of Medicare. In addition, a state can buy them into Part B of Medicare by paying the Part B premium. The adjustment for dual eligibility used earlier in this chapter for the acute care program is also used for acute care services used by long-term care recipients. No dual eligibility adjustment is made for the long-term care services for several reasons. First, Medicare covers only a small amount of long-term care services and, therefore, an adjustment that reflects the differences among the states of this small amount will be insignificant. Second, data do not exist on the dual eligibility of the subset of Medicaid eligibles who are long-term care users.

Tables 2-30 through 2-37 show the effects of the geographic and Medicare dual eligibility adjustments on the average monthly costs in the comparison states. The first row in these tables shows the unadjusted mean monthly costs in the comparison states. The second row of each table shows the mean monthly costs after making the geographic and Medicare dual eligibility adjustments. These adjustments increased the estimated average monthly costs for all types of care. This indicates a lower cost of care in the comparison states than in Arizona. For EPD aged beneficiaries, the estimated costs are increased, on average, 5.5% for institutional care, 6.5% for HCBS care, and 11.0% for acute care. For EPD non-aged beneficiaries, the estimated costs are increased, on average, 5.5% for institutional, 5.0% for HCBS care, and 6.5% for acute care. For MR/DD beneficiaries, the estimated costs are increased, on average, 8.0% for institutional care, 5.0% for HCBS care, and 13.0% for acute care.

Adjustment for Extreme Cases

An adjustment is made to the data from the comparison states to lessen the influence of extreme values on the means.[19] The average monthly costs in states with costs more than 1.5 standard deviations from the mean (either higher or lower) are truncated to tne value 1.5 standard deviations from the mean. This adjustment has varying effects for EPD beneficiaries in FY 90 and FY 91 and, generally, decreases costs for all types of care in FY 92 and FY 93 (see Tables 2-30 through 2-37, row 3). For institutional care of aged beneficiaries, the adjustment decreases costs by one percent in FY 91 through FY 93. For institutional care of non-aged beneficiaries, the adjustment increases costs by one percent in FY 90 and FY 91 and decreases costs by two percent in FY 92 and FY 93. For home-health care, the adjustment increase the costs, on average, by one percent for FY 90 and decreases the costs, on average by two to three percent in the other fiscal years. For acute care, the adjustment decreases the cost estimates, on the average, by amounts varying from one to three percent for each of the fiscal years.

For MR/DD non-aged beneficiaries, this adjustment generally decreases costs for all types of care. For institutional care, the adjustment decreases costs 1% in FY 90 and 3% in both FY 91 and FY 93. For home-health care, the adjustment decreases costs 1%, 4%, and 5% in FY 91, FY 92, and FY 93, respectively. For acute care, the adjustment decreases the cost estimates by a maximum of 7% in FY 91 to a minimum of 0.1% in FY 92.

Adjustment from Cash to Incurred Basis

The final adjustment is made to account for the difference between the reporting of expenditures on a cash basis rather than an incurred basis. The data on Medicaid outlays in the comparison states are on a cash basis, as reported on the HCFA-64. To compare with ALTCS data, which are on an incurred basis, adjustment factors are applied to the monthly cost estimates of the traditional Medicaid programs in the comparison states. For the acute care portion, the adjustment factors are those used in the analysis of the AHCCCS acute care program. For the long-term care portion, the adjustment factors are determined by multiplying the average lag time by the average rate of growth in long-term care expenditures. The average lag time is assumed to be one-fourth of a year (3 months). The average rate of program growth is determined separately for the aged and the disabled and for each fiscal year as the average of the rates of program growth for each state in the comparison group. Because data for FY 94 are not available at this time, the program growth rate between FY 93 and FY 94 can not be determined. Thus, the average rates of program growth for FY 93 are assumed to equal those for FY 92.

For the aged beneficiaries, the adjustment from cash to an incurred basis increases long-term care costs 6% in FY 90 and FY 91 and 2% in FY 92 and FY 93. For the disabled beneficiaries, the adjustment increases long-term care costs 3% for all years, except 4% for FY 91.

The final row of Tables 2-30 through 2-33 shows the estimated monthly costs, after all adjustments, of providing long-term care for EPD beneficiaries in a traditional Medicaid program in Arizona. The total costs for aged EPD beneficiaries are: $1,547 (FY 90), $1,734 (FY 91), $1,969 (FY 92), and $2,059 (FY 93). For non-aged EPD beneficiaries, total costs are: $2,063 (FY 90), $2,379 (FY 91), $2,748 (FY 92), and $2,781 (FY 93).

Tables 2-34 through 2-37 display the estimated traditional program monthly costs for MR/DD eligibles. The total costs for aged MR/DD beneficiaries are: $2,405 (FY 90), $2,542 (FY 91), $2,856 (FY 92), and $2,801 (FY 93). For non-aged MR/DD beneficiaries, the costs are: $3,544 (FY 90), $3,626 (FY 91), $3,952 (FY 92), and $3,973 (FY 93).

Estimates of the Daily Cost of Institutional Care

The Medicaid costs for institutional care given in Tables 2-30 through 2-37 are derived bv dividing institutional care expenditures by the number of long-term care users (including home-health users). Because costs per day of institutional care is a more common concept, these costs are given in Table 2-38 (FY 92) and Table 2-39 (FY 93) for each state in the comparison group by aged and disabled eligibility categories.

Long-Term Care Program Cost Comparison: ALTCS vs. Traditional Medicaid Program

The cost of the ALTCS program is compared to our estimate of the cost of a traditional Medicaid program in Arizona for persons at risk of institutionalization. There are two major components of program costs for both Arizona and the comparison states: 1) the average cost per user per month, and 2) the number of user months. The number of user months depends on the user ratio. Cost comparisons are made for EPD eligibles and MR/DD eligibles separately by category of eligibility [SSI aged eligibles and non-aged eligibles (AFDC, blind and disabled)]. The costs and the user ratios for Arizona exclude Native Americans on reservations. For the comparison states, no data for any specific group of individuals (including Native Americans) are excluded.

Tables 2-40, 2-41, 2-42 and 2-43 summarize the cost comparison between the ALTCS program and our estimate of a traditional Medicaid program in Arizona for FY 90, FY 91, FY 92 and FY 93, respectively. The first section of

Table 2-38

ADJUSTED* COST PER DAY OF INSTITUTIONALIZED CARE IN TRADITIONAL MEDICAID PROGRAMS, BY STATE, FOR THE AGED AND DISABLED, FY 92

	Aged		Disabled	
	SNF/ICF	ICF/MR	SNF/ICF	ICF/MR
Alabama	$60.47	$217.55	$ 68.16	$205.09
Arkansas	44.78	179.29	64.94	224.43
Delaware	70.40	174.48	105.77	179.45
Georgia	47.02	200.16	57.64	203.74
Iowa	36.61	278.51	42.90	236.95
Kentucky	50.81	199.71	69.38	157.10
Maine	89.41**	260.59	126.84**	275.68
Nevada	68.48	0.00***	90.13	215.89
New Jersey	67.53	184.82	94.78	185.11
Pennsylvania	81.21	189.19	105.64	185.75
Vermont	72.24**	340.21**	09.43**	293.98**
Wyoming	60.08	0.00***	62.38	136.95
Mean	62.42	222.45	83.17	208.34

Source: HCFA-64 and HCFA-2082 reports.

* Cost adjusted for geographic price differences and for effect of extreme cases.

** Data from MSIS files used due to data inconsistencies in the HCFA-2082 reports.

*** No recipients for this eligibility classification.

Table 2-39

ADJUSTED* COST PER DAY OF INSTITUTIONALIZED CARE IN TRADITIONAL MEDICAID PROGRAMS, BY STATE, FOR THE AGED AND DISABLED, FY 93

	Aged		Disabled	
	SNF/ICF	ICF/MR	SNF/ICF	ICF/MR
Alabama	$63.49	$206.85	$ 71.72	$199.03
Arkansas	49.89	233.45	66.98	294.54
Delaware	73.19	188.93	121.31	172.37
Georgia	49.85	200.09	59.54	207.20
Iowa	38.90	184.43	44.46	242.99
Kentucky	55.73	328.55	74.53	183.74
Maine	87.02**	278.97	121.43**	276.62
Nevada	76.72	0.00***	94.53	325.53
New Jersey	75.07	184.82	108.15	186.23
Pennsylvania	85.41	221.89	108.78	223.17
Vermont	78.90**	421.12**	44.69**	328.55**
Wyoming	49.07	220.96	50.76	224.37
Mean	65.27	267.01	88.91	238.69

Source: HCFA-64 and HCFA-2082 reports.

* Cost adjusted for geographic price differences and for effect of extreme cases.

** Data from MSIS files used due to data inconsistencies in the HCFA-2082 reports.

*** No recipients for this eligibility classification.

Table 2-40

ALTCS INCURRED PROGRAM OUTLAYS AND THE ESTIMATED COST OF A TRADITIONAL MEDICAID PROGRAM FOR FY 90

(cost shown in thousands)

	EPD			MR/DD			
	Aged	Non-Aged	Total	Aged	Non-Aged	Total	Total
ALTCS (A)							
User Ratio	73.92%	5.55%		0.15%	9.69%		
PMPM Cost	$ 1,775	$ 2,040	$ 1,826	$ 2,389	$ 2,384	$ 2,384	$ 1,967
# of Member Months	74,973	17,941	92,914	157	31,321	31,478	124,392
Cost	$133,055	$ 36,596	$169,651	$ 375	$ 74,669	$ 75,044	$244,695
Traditional Program (TP)							
User Ratio	77.44%	7.12%		2.94%	8.77%		
PMPM Cost	$ 1,547	$ 2,063	$ 1,664	$ 2,405	$ 3,544	$ 3,436	$ 2,082
# of Months (est.)	78,543	23,014	101,557	2,982	28,347	31,329	132,886
Estimated Cost	$121,506	$ 47,478	$168,984	$ 7,172	$100,462	$107,634	$276,618
Differences (Diff)							
User Ratio (A ÷ TP)	0.9545	0.7795		0.0510	1.1049		
PMPM Cost (A - TP)	$ 228	$ (23)	$ 162	$ (16)	$ (1,160)	$ (1,052)	$ (115)
# of Months (A - TP)	(3,570)	(5,073)	(8,643)	(2,825)	2,974	149	(8,494)
Cost (A - TP)	$ 11,549	$(10,882)	$ 667	$ (6,797)	$(25,793)	$(32,590)	$(31,923)
% Differences (Diff ÷ TP)							
PMPM Cost	14.7%	(1.1%)	9.7%	0.7%	(32.7%)	(30.6%)	(5.5%)
# of Months	(4.5%)	(22.0%)	(8.5%)	(94.7%)	10.5%	0.5%	(6.4%)
Cost	9.5%	(22.9%)	0.4%	(94.8%)	(25.7%)	(30.3%)	(11.5%)

Source: AHCCCS Administration, MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

Table 2-41

ALTCS INCURRED PROGRAM OUTLAYS AND THE ESTIMATED COST OF A TRADITIONAL MEDICAID PROGRAM FOR FY 91

(cost shown in thousands)

	EPD			MR/DD			
	Aged	Non-Aged	Total	Aged	Non-Aged	Total	Total
ALTCS (A)							
User Ratio	76.94%	5.50%		0.16%	12.09%		
PMPM Cost	$ 1,890	$ 2,048	$ 1,921	$ 2,209	$ 2,365	$ 2,364	$ 2,055
# of Member Months	83,018	20,384	103,402	172	44,816	44,988	148,390
Cost	$156,883	$ 41,739	$198,622	$ 380	$105,981	$106,361	$304,983
Traditional Program (TP)							
User Ratio	93.44%	6.53%		2.23%	9.03%		
PMPM Cost	$ 1,734	$ 2,379	$ 1,859	$ 2,542	$ 3,626	$ 3,553	$ 2,237
# of Months (estimated)	100,825	24,200	125,025	2,406	33,465	35,871	160,896
Estimated Cost	$174,831	$ 57,572	$232,403	$ 6,116	$121,344	$127,460	$359,863
Differences (Diff)							
User Ratio (A ÷ TP)	0.8234	0.8423		0.0717	1.3389		
PMPM Cost (A - TP)	$ 156	$ (361)	$ 62	$ (333)	$ (1,261)	$ (1,189)	$ (182)
# of Months (A - TP)	(17,807)	(3,816)	(21,623)	(2,234)	11,351	9,117	(12,506)
Cost (A - TP)	$(17,948)	$(15,833)	$(33,781)	$ (5,736)	$(15,363)	$(21,099)	$(54,880)
% Differences (Diff ÷ TP)							
PMPM Cost	9.0%	(13.9%)	3.3%	(13.1%)	(34.8%)	(33.5%)	(8.1%)
# of Months	(17.7%)	(15.8%)	(17.3%)	(92.9%)	33.9%	5.4%	(7.8%)
Cost	(10.3%)	(27.5%)	(14.5%)	(93.8%)	(12.7%)	(16.6%)	(15.3%)

Source: AHCCCS Administration, MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

Table 2-42

ALTCS INCURRED PROGRAM OUTLAYS AND THE ESTIMATED COST OF A TRADITIONAL MEDICAID PROGRAM FOR FY 92
(cost shown in thousands)

	EPD			MR/DD			
	Aged	Non-Aged	Total	Aged	Non-Aged	Total	Total
ALTCS (A)							
User Ratio	80.18%	5.71%		0.17%	12.12%		
PMPM Cost	$ 1,974	$ 1,878	$ 1,971	$ 2,261	$ 2,384	$ 2,384	$ 2,097
# of Member Months	93,518	24,306	117,824	199	51,555	51,754	169,578
Cost	$184,631	$ 47,654	$232,285	$ 450	$122,914	$123,364	$ 355,649
Traditional Program (TP)							
User Ratio	98.47%	6.12%		2.26%	9.10%		
PMPM Cost	$ 1,969	$ 2,748	$ 2,113	$ 2,856	$ 3,952	$ 3,882	$ 2,514
# of Months (estimated)	114,855	26,034	140,889	2,636	38,711	41,347	182,236
Estimated Cost	$226,149	$ 71,541	$297,690	$ 7,528	$152,986	$160,514	$ 458,204
Differences (Diff)							
User Ratio (A ÷ TP)	0.8143	0.9330		0.0752	1.3319		
PMPM Cost (A - TP)	$ 5	$ (870)	$ (142)	$ (595)	$ (1,568)	$ (1,498)	$ (417)
# of Months (A - TP)	(21,337)	(1,728)	(23,065)	(2,437)	12,844	10,407	(12,658)
Cost (A - TP)	$(41,518)	$(23,887)	$(65,405)	$ (7,078)	$(30,072)	$(37,150)	$(102,555)
% Differences (Diff ÷ TP)							
PMPM Cost	0.3%	(31.7%)	(6.7%)	(20.8%)	(39.7%)	(38.6%)	(17.6%)
# of Months	(18.6%)	(6.6%)	(16.4%)	(92.5%)	33.2%	25.2%	(6.9%)
Cost	(18.4%)	(33.4%)	(22.0%)	(94.0%)	(19.7%)	(23.1%)	(22.4%)

Source: AHCCCS Administration, MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

Table 2-43

ALTCS INCURRED PROGRAM OUTLAYS AND THE ESTIMATED COST OF A TRADITIONAL MEDICAID PROGRAM FOR FY 93
(cost shown in thousands)

	EPD			MR/DD			
	Aged	Non-Aged	Total	Aged	Non-Aged	Total	Total
ALTCS (A)							
User Ratio	84.64%	5.98%		0.18%	11.37%		
PMPM Cost	$ 2,015	$ 2,020	$ 2,017	$ 2,576	$ 2,575	$ 2,575	$ 2,182
# of Member Months	104,460	29,444	133,904	224	55,983	56,207	190,111
Cost	$210,538	$ 59,485	$270,023	$ 577	$144,131	$144,708	$ 414,731
Traditional Program (TP)							
User Ratio	101.01%	5.97%		2.83%	9.15%		
PMPM Cost	$ 2,059	$ 2,781	$ 2,197	$ 2,801	$ 3,973	$ 3,889	$ 2,602
# of Months (estimated)	124,667	29,387	154,054	3,493	45,040	48,533	202,587
Estimated Cost	$256,689	$ 81,725	$338,414	$ 9,784	$178,944	$188,728	$ 527,142
Differences (Diff)							
User Ratio (A ÷ TP)	0.8379	1.0017		0.0636	1.2426		
PMPM Cost (A - TP)	$ (44)	$ (761)	$ (180)	$ (225)	$ (1,398)	$ (1,314)	$ (420)
# of Months (A - TP)	(20,207)	57	(20,150)	(3,269)	10,943	7,674	(12,476)
Cost (A - TP)	$(46,151)	$(22,240)	$(68,391)	$ (9,207)	$(34,813)	$(44,020)	$ (112,411)
% Differences (Diff ÷ TP)							
PMPM Cost	(2.1%)	(27.4%)	(8.2%)	(8.0%)	(35.2%)	(33.8%)	(16.1%)
# of Months	(16.2%)	(0.2%)	(13.1%)	(93.6%)	24.3%	15.8%	(6.2%)
Cost	(18.0%)	(27.2%)	(20.2%)	(94.1%)	(19.5%)	(23.3%)	(21.3%)

Source: AHCCCS Administration, MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

each table contains the actual data for ALTCS (the user ratio, the average cost per member per month, the number of months of eligibility, and the ALTCS program outlays). The second section of each table has similar information estimated for a traditional Medicaid program in Arizona based on the data from the comparison states. The estimate of the average cost per member per month in a traditional program was derived in the previous section. The expected number of months for a traditional program is estimated as the number of months of SSI eligibility in Arizona in each fiscal year multiplied by the user ratio for the comparison states. This factor reflects the relative difference in the number of persons using long-term care services in the comparison states, as compared to the ALTCS program. The cost of a traditional program is equal to the average monthly cost times the expected number of months. Tables 2-40 to 2-43 are for medical services costs. Medical services costs include the cost of long-term care [including institutional (SNF, ICF, ICF/MR) and HCBS care] and acute care services used by persons receiving long-term care services. The costs do not include administrative costs of the state Medicaid programs.

As shown in Table 2-40, ALTCS costs are $169.7 million for EPD eligibles and $75.0 million for MR/DD eligibles for a total of $244.7 million in FY 90. The estimated costs for a traditional Medicaid program in Arizona are $169.0 million for EPD eligibles and $107.6 million for MR/DD eligibles. Thus, ALTCS costs for EPD eligibles are $667,000 (0.4%) more than a traditional program. For MR/DD eligibles in FY 90, ALTCS costs are $32.6 million (30.3%) less than the estimated cost of a traditional program in Arizona. Total ALTCS costs (EPD and MR/DD) are $31.9 million (11.5%) less than the costs of a traditional program.

For FY 91, ALTCS costs are $33.8 million (14.5%) lower than traditional program costs for EPD eligibles (see Table 2-41). For MR/DD eligibles, ALTCS costs are $21.1 million (16.6%) less than the cost of a traditional program. Total ALTCS costs are $54.9 million (15.3%) less than a traditional program.

As shown in Table 2-42, ALTCS costs are $65.4 million (22.0%) less than the estimate of traditional program costs for EPD eligibles in FY 92. ALTCS costs for MR/DD eligibles are $37.2 million (23.1%) less than the cost of a traditional program. Considering both EPD and MR/DD eligibles, ALTCS costs for FY 92 are $102.6 million (22.4%) less than the cost of a traditional Medicaid program in Arizona. For FY 93 the results are similar to those for FY 92 (see Table 2-43). ALTCS costs for EPD and MR/DD eligibles are 21.3% less than traditional program costs.

Overall, the results indicate that the ALTCS medical costs are smaller than the estimated medical costs of a traditional Medicaid program in Arizona during the second through fifth years of the program. The costs for MR/DD eligibles in the ALTCS program are smaller than those of a traditional program for each year from FY 90 to FY 93. In all years, the number of MR/DD eligibles served by ALTCS is greater than the estimated number in a traditional Medicaid program, but the monthly cost per eligible is significantly less than in a traditional program.

For EPD eligibles, ALTCS costs are slightly larger in FY 90, but smaller in FY 91, FY 92 and FY 93. In the first two years, the ALTCS monthly cost for EPD eligibles is larger than the monthly costs for a traditional program. It is somewhat smaller in FY 92 and FY 93. The ALTCS monthly cost is 10% larger ($1,826 versus $1,664) in FY 90, 3% larger ($1,921 versus $1,859) in FY 91, 7% smaller ($1,971 versus $2,113) in FY 92, and 8% smaller ($2,017 versus $2,197) in FY 93. However, in all of these years, the number of EPD users of long-term care services is smaller in ALTCS than the estimated number of traditional program users. The number of EPD users of long-term care services is 9% smaller in ALTCS (92,914 versus 101,557) in FY 90, 17% smaller (103,402 versus 125,025) in FY 91, 16% smaller (117,824 versus 140,889) in FY 92, and 13% smaller (133,904 versus 154,054) in FY 93.

As discussed above, Tables 2-40 to 2-43 include only medical services costs and do not include administrative costs. Table 2-44 includes estimates of administrative costs in the comparison of the ALTCS program to a traditional Medicaid program in Arizona. For every year, Arizona's administrative costs, as a percentage of medical services costs, are estimated to be greater than the administrative costs of the comparison states: 8.1%

Table 2-44

COMPARISON OF ALTCS INCURRED PROGRAM OUTLAYS AND ESTIMATES OF TRADITIONAL PROGRAM COSTS, FOR MEDICAL SERVICES, ADMINISTRATION, AND TOTAL COSTS FOR FY 90, FY 91, FY 92 AND FY 93

(in thousands)

	Medical Services	Administration	Total
FY 90			
ALTCS Outlays	$244,695	$19,820	$264,515
Estimate of Traditional Program Costs	276,618	11,341	287,959
Difference Between ALTCS Outlays and Estimate of Traditional Program Costs			(23,444)
Difference as a Percentage of Estimated Traditional Program Costs			(8.14%)
FY 91			
ALTCS Outlays	$304,983	$13,419	$318,402
Estimate of Traditional Program Costs	359,863	12,955	372,818
Difference Between ALTCS Outlays and Estimate of Traditional Program Costs			(54,416)
Difference as a Percentage of Estimated Traditional Program Costs			(14.60%)

Table 2-44 (Concluded)

COMPARISON OF ALTCS INCURRED PROGRAM OUTLAYS AND ESTIMATES OF TRADITIONAL PROGRAM COSTS, FOR MEDICAL SERVICES, ADMINISTRATION, AND TOTAL COSTS FOR FY 90, FY 91, FY 92 AND FY 93

(in thousands)

	Medical Services	Administration	Total
FY 92			
ALTCS Outlays	$355,649	$15,649	$371,298
Estimate of Traditional Program Costs	458,204	13,288	471,492
Difference Between ALTCS Outlays and Estimate of Traditional Program Costs			(100,194)
Difference as a Percentage of Estimated Traditional Program Costs			(21.25%)
FY 93			
ALTCS Outlays	$414,731	$16,589	$431,320
Estimate of Traditional Program Costs	527,142	15,814	542,956
Difference Between ALTCS Outlays and Estimate of Traditional Program Costs			(111,636)
Difference as a Percentage of Estimated Traditional Program Costs			(20.56%)

Source: AHCCCS Administration, MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

vs. 4.1% in FY 90, 4.4% vs. 3.6% in FY 91, 4.4% vs. 2.9% in FY 92, and 4.0% vs. 3.0% in FY 93. However, whereas there is a 4.0% difference in FY 90, the difference decreases to only 1.0% by FY 93.

The ALTCS cost in FY 90, including medical and administrative costs, is $23.4 million (8.1%) less than the cost of a traditional program. For FY 91, the cost of the ALTCS program is $54.4 million (14.6%) less than traditional program costs. For FY 92 and FY 93, ALTCS program cost is estimated to be $100.2 million (21.3%) and $111.6 million (20.6%) less than traditional program costs, respectively.

This analysis indicates that the cost of the ALTCS program during the second through fifth years of the program is somewhat less than the cost of a traditional Medicaid program in Arizona. However, several factors and caveats should be taken into consideration when interpreting the results. First, the primary results for the cost of a traditional program are based on a set of 12 comparison states (9 states in FY 90). These states are the only states that satisfied the selection criteria and have complete data available for analysis. The small number of states and the degree of variation among states tend to weaken conclusions that can be made from the results. Second, although the cost analysis indicated substantial savings for the ALTCS program, it should be noted that many of the comparison states had costs that were lower than the comparable ALTCS costs. Thus, even though ALTCS had lower costs than the average of the comparison states, ALTCS costs were higher than some of the individual comparison states, and it is necessary to caveat the overall positive results due to the limited number of comparison states for which data were available.

Summary and Policy Implications

This chapter presented the results of our analysis of 1) AHCCCS acute care costs for FY 92 and FY 93, and 2) ALTCS costs for FY 90, FY 91, FY 92, and FY 93. In both cases, the incurred cost of the Arizona program was compared to an estimate from a set of comparison states of the cost of a traditional Medicaid program in Arizona.

AHCCCS Acute Care Costs

The incurred outlays for the AHCCCS acute care program, including medical service and administrative costs for AFDC and SSI eligibles, were $531.8 million in FY 92 and $613.8 million in FY 93. The cost of a traditional Medicaid program in Arizona was estimated to be $574.2 million in FY 92 and $661.6 million in FY 93. Thus, AHCCCS cost $42.4 million (7.4%) less than a traditional program in FY 92 and $47.8 million (7.2%) less than a traditional program in FY 93.

To summarize the AHCCCS acute care cost savings results contained in this chapter and the previous evaluation reports, Table 2-45 focuses on three time periods: 1) the first year of the program, FY 83; 2) the next five years (the second through sixth years of the program), FY 84-88; and 3) the succeeding five years (the seventh through eleventh years of the program), FY 89-93.

For medical costs, AHCCCS had higher costs than a traditional program for the first year of $1.8 million (negative savings). For the next five years, AHCCCS averaged cost savings of $9.3 million a year, or 7.5% of the cost of a traditional program. For the next five years, the seventh to eleventh years of the program, AHCCCS averaged cost savings of $52.3 million, or 12.8% of traditional program costs.

A similar pattern held for total costs (medical plus administrative costs). However, the savings were lower due to the higher administrative costs of the AHCCCS program. For the first year, FY 83, AHCCCS costs were higher by 4.5%. During the next five years, the total costs of AHCCCS were lower by 3.6%. During the next five years ending FY 93, AHCCCS costs were lower by 8.3%, with savings of approximately $35 million per year.

Table 2-45

TRENDS IN COST SAVINGS: AHCCCS ACUTE CARE PROGRAM, FY 83 - FY 93
(millions)

	Amount of Savings per Year	Savings as Percent of Traditional Program
Medical Costs		
FY 83	$ (1.8)	(2.3%)
FY 84 - FY 88	9.3	7.5%
FY 89 - FY 93	52.3	12.8%
Total FY 83 - FY 93	27.8	11.2%
Total Costs		
FY 83	$ (3.7)	(4.5%)
FY 84 - FY 88	4.7	3.6%
FY 89 - FY 93	35.4	8.3%
Total FY 83 - FY 93	17.9	6.9%

Source: AHCCCS Administration, HCFA-64, HCFA-2082.

Our overall conclusion is that the AHCCCS acute care program has produced cost savings of approximately 11 percent of medical costs and seven percent of total costs (medical and administrative), compared to a traditional Medicaid program in Arizona. Notwithstanding the numerous assumptions that were necessary to estimate the cost of a traditional program, it appears that the AHCCCS program had savings in every year except for the first year of the program. In addition, AHCCCS was successful in holding the rate of increase in costs below the comparable rate of increase in costs for a traditional program.

Analysis of the trends in per capita medical costs over time indicates that: 1) Arizona started off slightly higher than a traditional program in FY 83, 2) Arizona produced significantly lower rates of increase during the next five years (FY 84-88), and 3) Arizona averaged greater savings for the next five-year ending in 1993. The level of savings has grown significantly over time from around $10 million per year in the early years of the program to approximately $72 million in FY 93. This is partly a result of the increase in total program expenditures. However, it also appears that the percentage savings is accelerating over time.

In addition, the AHCCCS acute care program has been successful in containing cost increases below those experienced in the comparison states. Since the beginning of the program, FY 83 to FY 93, AHCCCS' average per capita cost increased 138% while the average per capita cost in the comparison states increased 166%, a reduction of 28 percentage points in the rate of increase. For the period from FY 83 to FY 93, the average annual increase in AHCCCS per capita cost was 9.1%, compared to 10.3% for a traditional Medicaid program in Arizona.

Another conclusion is that Arizona has higher administrative costs, as a percentage of medical costs, than the group of comparison states. It is likely that Arizona will continue to experience administrative costs that are somewhat higher than the average of other Medicaid programs. However, the savings in medical costs outweighs the higher administrative costs so that

Arizona has experienced total costs (medical and administrative) that are estimated to be seven percent below the total costs in a traditional program.

A relevant question is whether the cost savings realized in the past would be expected to continue in future years. The last procurement of AHCCCS acute care health plans occurred in the summer of 1994. All current contractors submitted bids, and there were some new bidders in the procurement. In particular, CIGNA Community Choice and Access Blue Connection submitted bids for the first time and were awarded contracts in several counties. It appears that there was a high level of price competition throughout the state. In some counties, the new capitation rates for FY 95 were actually below the FY 94 rates. Thus, there are strong indications that the favorable cost experience for AHCCCS will continue for at least the next few years. In summary, the results indicate that an AHCCCS-type managed care program is a promising approach for controlling rapidly rising Medicaid costs for acute care services.

ALTCS Costs

The ALTCS program started in December 1988. ALTCS costs, including medical and administrative costs, were estimated to be 8% less in FY 90, 15% less in FY 91, 22% less in FY 92, and 21% less in FY 93 than the cost of a traditional program. For FY 93, ALTCS incurred costs of $431.3 million were $111.6 million less than estimated traditional program costs.

The ALTCS program covers two main eligibility groups: the EPD and the MR/DD eligibles. For EPD eligibles, the ALTCS incurred cost was 0.4% more in FY 90, 15% less in FY 91, 22% less in FY 92, and 20% less in FY 93 than the estimated cost of a traditional Medicaid program. The per capita ALTCS cost for EPD eligibles, compared to a traditional program, was 10% more in FY 90, 3% more in FY 91, 7% smaller in FY 92, and 8% smaller in FY 93. However, the number of months of ALTCS eligibility was estimated to be 9% less in FY 90, 17% less in FY 91, 16% less in FY 92, and 13% less in FY 93, compared to a traditional Medicaid program. Thus, even though the cost per user was greater under ALTCS in FY 90 and FY 91, there were some savings for the EPD component of the ALTCS program because there was a smaller number of EPD users of long-term care services under ALTCS, compared to the estimated number of traditional program users. This smaller number of EPD users of long-term care services could be the result of a more stringent preadmission screening procedure in Arizona relative to the comparison states.

For MR/DD eligibles, the ALTCS incurred cost was 30% less in FY 90, 17% less in FY 91, 23% less in FY 92, and 23% less in FY 93. Compared to a traditional program, the MR/DD per capita cost was 31% less in FY 90, 34% less in FY 91, 39% less in FY 92, and 34% less in FY 93. The number of ALTCS MR/DD eligibles was 1% more in FY 90, 5% more in FY 91, 25% more in FY 92, and 16% more in FY 93, compared to the estimated number of MR/DD users in a traditional program.

Results from the Arizona long-term care experience indicate that EPD costs for the program are about equal for FY 90 and less than our estimates of a traditional program's cost in Arizona for FY 91 to FY 93. The average cost per EPD user is larger in FY 90 and FY 91, but smaller in FY 92 and FY 93. The number of users is smaller than the traditional estimate for all years.

A large part of the overall savings estimated for the long-term care program is a result of the significantly lower cost experience of the MR/DD group. As compared with our estimates for a traditional program, the cost per user for MR/DD eligibles is substantially less and the number of users is larger than the traditional program estimates for all years. The state philosophy of not institutionalizing MR/DD beneficiaries that existed before ALTCS likely has an important impact on the findings of lower cost per user.

COST ANALYSIS OF THE AHCCCS ACUTE CARE AND ALTCS PROGRAMS — SUPPLEMENTAL TABLES

Table 2S-1

COMPARISON BETWEEN THE SOCIAL SECURITY BULLETIN AND THE HCFA-2082 REPORTS ON THE NUMBER OF MEDICAID AGED AND BLIND ELIGIBLES RECEIVING CASH ASSISTANCE IN 1992

	Aged		Blind	
	Social Security Bulletin	HCFA 2082	Social Security Bulletin	HCFA 2082
Alabama	46,391	45,681	1,658	1,689
Arkansas	25,692	26,006	1,223	1,274
California	338,159	318,696	22,415	24,619
Florida	88,348	91,703	3,248	3,463
Georgia	49,113	48,495	2,664	2,665
Idaho	2,213	1,235	154	23
Iowa	7,193	9,487	1,047	537
Louisiana	38,455	54,795	2,291	1,723
Maine	6,436	6,317	270	201
Michigan	25,603	27,011	2,190	1,976
Mississippi	39,005	38,960	1,617	1,652
Montana	1,811	2,041	122	74
New Jersey	32,198	32,422	1,189	1,080
New Mexico	9,633	8,699	609	547
North Dakota	2,198	4,099	96	32
Oregon	8,703	8,556	742	827
Pennsylvania	41,548	53,453	2,885	1,137
South Carolina	27,694	40,364	1,796	1,768
South Dakota	2,750	2,925	147	147
Tennessee	39,456	49,054	2,003	2,656
Texas	122,912	158,746	5,389	4,114
Utah	1,996	2,627	300	86
Vermont	2,415	3,754	127	82
West Virginia	8,742	15,997	699	248
Wisconsin	20,814	21,216	1,187	1,209

Source: HCFA-2082, Social Security Bulletin.

Table 2S-2

COMPARISON BETWEEN THE SOCIAL SECURITY BULLETIN, THE OFFICE OF FAMILY ASSISTANCE, AND THE HCFA-2082 REPORTS ON THE NUMBER OF MEDICAID DISABLED AND AFDC ELIGIBLES RECEIVING CASH ASSISTANCE IN 1992

	Disabled		AFDC	
	Social Security Bulletin	HCFA 2082	Office of Family Assistance	HCFA 2082
Alabama	93,259	97,536	141,941	144,263
Arkansas	55,026	60,810	75,112	76,513
California	582,200	581,367	2,306,509	2,212,692
Florida	159,759	173,491	601,172	663,530
Georgia	118,781	120,768	388,022	390,758
Idaho	10,521	3,802	19,708	19,712
Iowa	27,472	29,536	102,540	98,972
Louisiana	105,649	90,459	273,747	270,502
Maine	18,167	18,962	68,108	69,124
Michigan	130,192	128,569	674,235	682,912
Mississippi	80,437	83,542	177,325	166,100
Montana	9,213	8,872	32,154	20,835
New Jersey	82,995	90,697	352,710	339,428
New Mexico	24,769	22,632	87,806	75,652
North Dakota	5,861	4,672	18,258	18,182
Oregon	29,432	15,780	116,072	126,385
Pennsylvania	164,551	166,883	593,928	594,981
South Carolina	65,701	50,996	139,553	138,232
South Dakota	8,350	8,214	20,368	20,548
Tennessee	110,508	147,270	266,125	282,563
Texas	197,379	174,638	757,948	757,497
Utah	12,659	7,761	51,829	50,672
Vermont	8,532	7,759	28,987	29,463
West Virginia	42,437	40,035	118,609	138,836
Wisconsin	70,997	76,084	243,857	228,533

Source: HCFA-2082, Social Security Bulletin.

Table 2S-3

ESTIMATED ADJUSTED MEDICAID COSTS* FOR SERVICES PAID IN FY 92 PER AGED ELIGIBLE WITH CASH ASSISTANCE BY STATE AND TYPE OF SERVICE

	Inpatient Hospital	Physician	Drugs	Other	Total
Alabama	$ 98.29	$10.60	$ 41.30	$ 68.63	$218.82
Arkansas	41.47	19.26	39.40	49.44	149.57
California	39.67	6.14	37.65	41.82	125.55
Florida	32.45	10.67	52.62	133.83	229.57
Georgia	49.48	24.48	41.85	47.22	163.03
Iowa	61.11	7.73	78.77	204.76	352.37
Louisiana	117.38	33.34	113.47	101.00	365.19
Maine	102.00	5.78	47.30	86.19	241.27
Michigan	38.04	4.33	48.34	118.87	209.58
Mississippi	44.25	24.86	47.34	38.14	154.59
Montana	72.90	23.66	62.57	176.56	335.69
New Jersey	72.54	3.98	66.98	52.24	195.74
New Mexico	22.73	17.74	27.61	57.64	125.72
Pennsylvania	56.64	5.11	68.95	154.35	285.05
South Carolina	256.87	39.21	60.23	59.43	415.74
Tennessee	32.48	16.94	57.45	45.54	152.41
Texas	100.06	27.92	46.53	102.57	277.08
Vermont	162.48	15.70	84.60	109.58	372.36
West Virginia	57.74	40.14	92.45	324.58	514.91
Wisconsin	37.81	10.69	47.89	149.78	246.17
Average	74.82	17.42	58.17	106.11	256.52
Adjusted for outliers					251.64
Adjusted to incurred cost basis					257.93

Source: HCFA-64, HCFA-2082.

* Costs are adjusted for price differences due to geographic location and dual Medicare/Medicaid eligibility.

Table 2S-4

ESTIMATED ADJUSTED MEDICAID COSTS* FOR SERVICES PAID IN FY 92 PER BLIND ELIGIBLE WITH CASH ASSISTANCE BY STATE AND TYPE OF SERVICE

	Inpatient Hospital	Physician	Drugs	Other	Total
Alabama	$141.49	$32.98	$34.98	$ 45.68	$255.13
Arkansas	86.71	47.14	34.17	77.33	245.35
California	146.91	21.54	55.36	81.87	305.68
Florida	113.66	36.08	45.87	127.55	323.16
Georgia	119.33	60.88	39.16	81.45	300.82
Iowa	34.47	25.61	22.25	80.48	162.81
Louisiana	158.32	41.46	40.61	88.09	328.48
Maine	54.73	15.57	27.37	76.62	174.29
Michigan	86.84	19.39	32.96	98.63	237.82
Mississippi	128.73	52.64	39.38	71.58	292.33
Montana	61.34	43.12	16.96	113.93	235.35
New Jersey	205.89	9.42	56.24	79.65	351.20
New Mexico	94.22	37.27	26.52	83.02	241.03
Pennsylvania	33.87	4.25	17.58	25.37	81.07
South Carolina	216.19	47.99	30.78	73.27	368.23
Tennessee	183.96	61.46	46.26	94.02	385.70
Texas	153.15	43.99	20.67	116.99	334.80
Vermont	229.33	52.92	25.72	195.66	503.63
West Virginia	30.32	11.71	13.51	41.35	96.89
Wisconsin	106.72	23.44	46.51	205.32	381.99
Average	119.31	34.44	33.64	92.90	280.29
Adjusted for outliers					280.59
Adjusted to incurred cost basis					284.80

Source: HCFA-64, HCFA-2082.

* Costs are adjusted for price differences due to geographic location and dual Medicare/Medicaid eligibility.

Table 2S-5

ESTIMATED ADJUSTED MEDICAID COSTS* FOR SERVICES PAID IN FY 92 PER DISABLED ELIGIBLE WITH CASH ASSISTANCE BY STATE AND TYPE OF SERVICE

	Inpatient Hospital	Physician	Drugs	Other	Total
Alabama	$244.59	$ 42.10	$40.67	$ 69.80	$397.16
Arkansas	140.44	67.46	40.68	161.32	409.90
California	183.40	20.18	51.84	70.69	326.11
Florida	182.28	43.86	55.21	137.61	418.96
Georgia	201.99	71.29	43.73	116.75	433.76
Iowa	149.95	75.74	58.92	173.64	458.25
Louisiana	388.15	55.82	43.25	131.54	618.76
Maine	283.32	37.15	55.40	157.67	533.54
Michigan	195.58	26.16	48.58	170.44	440.76
Mississippi	187.05	51.86	43.71	92.27	374.89
Montana	252.64	106.13	57.97	258.19	674.93
New Jersey	472.00	14.25	85.47	147.95	715.67
New Mexico	210.24	55.49	40.25	114.91	420.89
Pennsylvania	222.29	20.42	55.39	97.72	395.82
South Carolina	271.44	45.02	28.25	116.49	461.20
Tennessee	269.36	67.50	57.54	162.30	556.70
Texas	271.00	42.17	27.02	142.45	482.64
Vermont	293.30	61.02	48.90	295.29	698.51
West Virginia	135.80	37.36	39.30	154.71	367.17
Wisconsin	187.35	30.35	58.37	305.63	581.70
Average	237.11	48.57	49.02	153.67	488.37
Adjusted for outliers					483.30
Adjusted to incurred cost basis					506.50

Source: HCFA-64, HCFA-2082.

* Costs are adjusted for price differences due to geographic location and dual Medicare/Medicaid eligibility.

Table 2S-6

ESTIMATED ADJUSTED MEDICAID COSTS* FOR SERVICES PAID IN FY 92 PER AFDC ELIGIBLE WITH CASH ASSISTANCE BY STATE AND TYPE OF SERVICE

	Inpatient Hospital	Physician	Drugs	Other	Total
Alabama	$ 71.20	$19.72	$ 5.97	$32.45	$129.34
Florida	37.38	17.05	6.00	28.04	88.47
Idaho	47.13	41.30	11.01	55.45	154.89
Iowa	41.77	45.27	11.08	48.53	146.65
Louisiana	129.38	41.99	12.01	54.74	238.12
Mississippi	50.09	25.32	7.64	35.28	118.33
Montana	30.44	24.07	4.16	26.64	85.31
New Mexico	67.57	36.01	10.07	45.87	159.52
North Dakota	57.86	30.71	6.44	53.99	149.00
Oregon	27.50	19.54	6.40	47.92	101.36
South Carolina	95.84	26.56	6.92	40.99	170.31
Tennessee	81.66	36.34	7.00	53.90	178.90
Utah	63.63	28.82	8.12	41.54	142.11
Average	61.65	30.21	7.91	43.48	142.11
Adjusted for outliers					140.71
Adjusted to incurred cost basis					143.81

Source: HCFA-64, HCFA-2082.

* Costs are adjusted for price differences due to geographic location and dual Medicare/Medicaid eligibility.

Table 2S-7

ESTIMATED ADJUSTED MEDICAID COSTS* FOR SERVICES PAID IN FY 93 PER AGED ELIGIBLE WITH CASH ASSISTANCE BY STATE AND TYPE OF SERVICE

	Inpatient Hospital	Physician	Drugs	Other	Total
Alabama	$104.64	$ 8.66	$ 48.05	$ 35.94	$197.29
Arkansas	38.39	17.70	34.51	58.64	149.24
California	46.90	6.63	38.66	48.36	140.55
Florida	33.17	10.44	48.84	172.85	265.30
Georgia	52.71	23.69	42.99	54.65	174.04
Iowa	55.82	7.88	77.64	257.01	398.35
Louisiana	174.78	34.73	112.33	110.47	432.31
Maine	136.68	8.29	47.90	109.84	302.71
Michigan	25.17	4.69	45.69	79.96	155.51
Mississippi	55.68	27.80	47.37	62.02	192.87
Montana	60.69	18.44	58.48	201.90	339.51
New Jersey	166.87	5.62	68.18	68.70	309.37
New Mexico	28.09	18.61	25.58	66.02	138.30
Pennsylvania	48.36	6.97	78.60	210.62	344.55
South Carolina	297.54	44.30	67.81	69.05	478.70
Tennessee	40.29	16.90	76.91	46.45	180.55
Texas	98.76	24.00	50.82	107.91	281.49
Vermont	90.03	14.62	86.40	110.90	301.95
West Virginia	90.60	48.03	118.75	444.25	701.63
Wisconsin	41.46	12.21	49.17	154.58	257.72
Average	84.33	18.01	61.23	123.53	287.10
Adjusted for outliers					276.86
Adjusted to incurred cost basis					283.78

Source: HCFA-64, HCFA-2082.

* Costs are adjusted for price differences due to geographic location and dual Medicare/Medicaid eligibility.

Table 2S-8

ESTIMATED ADJUSTED MEDICAID COSTS* FOR SERVICES PAID IN FY 93 PER DISABLED ELIGIBLE WITH CASH ASSISTANCE BY STATE AND TYPE OF SERVICE

	Inpatient Hospital	Physician	Drugs	Other	Total
Alabama	$166.86	$36.68	$41.72	$ 46.00	$291.26
Arkansas	98.16	50.02	29.81	88.07	266.06
California	167.45	21.62	60.57	94.56	344.20
Florida	81.71	29.95	43.46	142.89	298.01
Georgia	120.91	60.68	40.26	99.69	321.31
Iowa	29.63	16.70	22.46	82.03	150.82
Louisiana	189.07	42.09	39.59	105.76	376.51
Maine	47.08	13.27	25.97	124.94	211.26
Michigan	95.21	19.91	32.49	121.01	268.62
Mississippi	153.86	58.08	38.37	84.41	334.72
Montana	66.02	47.98	20.71	153.41	288.12
New Jersey	276.49	12.16	59.29	104.07	452.01
New Mexico	97.65	45.63	26.42	108.40	278.10
Pennsylvania	16.40	3.66	17.79	31.67	69.52
South Carolina	218.68	50.73	32.54	88.34	390.29
Tennessee	147.55	53.27	48.04	94.60	343.46
Texas	168.90	36.50	23.08	124.52	353.00
Vermont	58.15	35.64	27.12	172.62	293.53
West Virginia	27.99	12.64	14.35	50.04	105.02
Wisconsin	103.75	25.63	49.56	227.22	406.16
Average	116.58	33.64	34.68	107.20	292.10
Adjusted for outliers					297.30
Adjusted to incurred cost basis					301.76

Source: HCFA-64, HCFA-2082.

* Costs are adjusted for price differences due to geographic location and dual Medicare/Medicaid eligibility.

Table 2S-9

ESTIMATED ADJUSTED MEDICAID COSTS* FOR SERVICES PAID IN FY 93 PER BLIND ELIGIBLE WITH CASH ASSISTANCE BY STATE AND TYPE OF SERVICE

	Inpatient Hospital	Physician	Drugs	Other	Total
Alabama	$258.75	$43.63	$46.20	$ 69.83	$418.41
Arkansas	149.24	65.87	35.22	161.62	411.95
California	214.50	20.01	56.53	80.97	372.01
Florida	164.75	43.50	53.54	153.48	415.27
Georgia	220.98	73.70	45.76	131.35	471.79
Iowa	160.82	67.97	55.92	197.29	482.00
Louisiana	423.57	57.55	42.03	308.46	831.61
Maine	344.94	37.55	55.82	232.94	671.25
Michigan	181.48	27.16	43.83	183.59	436.06
Mississippi	187.60	48.27	36.59	101.52	373.98
Montana	167.15	74.48	58.86	252.04	552.53
New Jersey	538.02	17.43	88.46	187.45	831.36
New Mexico	234.67	59.99	40.03	149.35	484.04
Pennsylvania	187.64	23.62	63.91	130.58	405.75
South Carolina	269.59	47.15	30.55	143.85	491.14
Tennessee	284.71	70.95	64.63	166.61	586.45
Texas	284.02	38.98	29.96	155.69	508.65
Vermont	246.01	67.18	53.37	280.02	646.58
West Virginia	127.73	64.36	48.83	214.96	455.88
Wisconsin	165.72	32.42	58.74	288.06	544.94
Average	240.59	49.09	50.44	179.46	519.58
Adjusted for outliers					508.62
Adjusted to incurred cost basis					533.03

Source: HCFA-64, HCFA-2082.

* Costs are adjusted for price differences due to geographic location and dual Medicare/Medicaid eligibility.

Table 2S-10

ESTIMATED ADJUSTED MEDICAID COSTS* FOR SERVICES PAID IN FY 93 PER AFDC ELIGIBLE WITH CASH ASSISTANCE BY STATE AND TYPE OF SERVICE

	Inpatient Hospital	Physician	Drugs	Other	Total
Alabama	$ 66.38	$18.60	$ 6.90	$46.20	$138.08
Florida	33.50	17.25	6.08	31.18	88.01
Idaho	43.88	39.42	10.75	53.09	147.14
Iowa	45.45	41.67	11.24	50.85	149.21
Louisiana	139.60	42.69	11.99	64.63	258.91
Mississippi	59.33	27.87	7.12	41.93	136.25
Montana	42.87	33.78	8.26	41.86	126.77
New Mexico	40.15	27.63	7.26	45.78	120.82
North Dakota	48.61	30.81	6.43	58.75	144.60
Oregon	26.12	20.38	6.26	63.26	116.02
South Carolina	91.80	25.82	7.06	50.88	175.56
Tennessee	70.33	32.88	6.93	55.08	165.22
Utah	58.60	29.77	8.60	50.99	147.96
Average	58.97	29.89	8.07	50.34	147.27
Adjusted for outliers					143.33
Adjusted to incurred cost basis					146.48

Source: HCFA-64, HCFA-2082.

* Costs are adjusted for price differences due to geographic location and dual Medicare/Medicaid eligibility.

Table 2S-11

MEDICAID SNF AND ICF* EXPENDITURES REPORTED BY DIFFERENT DATA SOURCES BY STATE AND FISCAL YEAR
(in thousands)

	Data Source		
	MSIS Files	HCFA-2082	HCFA-64
Alabama			
1990	$169,286	$169,195	$166,609
1991	232,197	232,091	230,439
1992	315,730	315,678	310,327
1993	330,944	330,831	331,180
Arkansas			
1990	212,487	189,100	177,091
1991	223,169	201,387	199,702
1992	270,671	234,715	232,767
1993	291,910	252,632	248,640
Delaware			
1990	41,012	43,449	42,187
1991	53,123	53,116	50,277
1992	57,407	57,389	55,125
1993	59,315	59,311	57,706
Georgia			
1990	428,525	428,525	337,037
1991	441,288	440,971	418,934
1992	507,244	507,052	482,330
1993	540,182	539,960	524,955
Iowa			
1990	150,892	150,760	149,132
1991	194,093	194,002	189,788
1992	208,663	208,519	203,649
1993	224,338	224,207	216,499
Kentucky			
1991	270,242	270,198	250,309
1992	302,192	302,091	296,622
1993	334,194	334,016	325,039

Table 2S-11 (Concluded)

MEDICAID SNF AND ICF* EXPENDITURES REPORTED BY DIFFERENT DATA SOURCES BY STATE AND FISCAL YEAR
(in thousands)

	Data Source		
	MSIS Files	HCFA-2082	HCFA-64
Maine			
1990	$ 150,987	$ 150,986	$ 155,824
1991	181,932	181,928	202,305
1992	202,724	202,721	223,053
1993	207,916	207,907	217,447
Nevada			
1990	39,289	39,289	37,973
1991	44,097	44,097	44,753
1992	55,127	55,127	59,151
1993	58,892	58,892	67,778
New Jersey			
1990	700,364	699,624	712,154
1991	823,995	823,083	852,281
1992	864,672	864,603	914,635
1993	944,837	943,580	1,025,087
Pennsylvania			
1991	1,019,391	1,021,110	1,117,558
1992	1,253,176	1,249,640	1,791,054
1993	1,365,040	1,364,734	1,757,285
Vermont			
1990	45,140	45,136	45,789
1991	52,732	52,707	52,409
1992	59,094	59,086	60,677
1993	64,488	64,473	66,420
Wyoming			
1991	27,814	27,792	22,616
1992	32,652	32,606	33,176
1993	34,089	34,073	25,243

Source: MSIS files, HCFA-2082 reports, and HCFA-64 reports.

* Does not include ICF/MR expenditures.

Table 2S-12

MEDICAID ICF/MR EXPENDITURES REPORTED BY DIFFERENT DATA SOURCES BY STATE AND FISCAL YEAR

(in thousands)

	Data Source		
	MSIS Files	HCFA-2082	HCFA-64
Alabama			
1990	$ 64,191	$ 64,176	$ 63,649
1991	72,229	72,229	73,615
1992	76,836	76,832	80,858
1993	79,040	79,036	78,967
Arkansas			
1990	193,195	73,167	72,624
1991	174,834	81,669	81,118
1992	143,473	88,063	87,388
1993	186,199	89,605	88,397
Delaware			
1990	19.232	19,226	18,798
1991	23,757	23,757	23,386
1992	26,680	26,680	27,007
1993	27,579	27,579	26,368
Georgia			
1990	105,990	105,990	99,150
1991	109,434	109,394	107,217
1992	115,099	115,068	113,251
1993	115,979	115,979	114,873
Iowa			
1990	120,909	120,889	118,641
1991	137,543	137,506	134,332
1992	151,074	151,073	146,899
1993	162,102	162,101	156,357
Kentucky			
1991	57,330	57,325	62,721
1992	59,888	59,885	59,266
1993	69,624	69,624	68,386

Table 2S-12 (Concluded)

MEDICAID ICF/MR EXPENDITURES REPORTED BY DIFFERENT DATA SOURCES BY STATE AND FISCAL YEAR
(in thousands)

	Data Source		
	MSIS Files	HCFA-2082	HCFA-64
Maine			
1990	$ 42,434	$ 42,434	$ 55,238
1991	48,405	48,405	53,897
1992	49,577	49,577	61,051
1993	48,579	48,579	57,857
Nevada			
1990	13,783	13,783	13,587
1991	14,659	14,659	12,452
1992	16,827	16,827	16,287
1993	21,415	21,415	24,671
New Jersey			
1990	264,034	263,993	263,633
1991	280,037	279,967	291,552
1992	285,862	285,862	297,826
1993	286,481	286,265	296,996
Pennsylvania			
1991	451,788	452,493	485,288
1992	490,657	490,606	516,967
1993	477,259	477,258	576,313
Vermont			
1990	18,734	18,734	17,590
1991	20,442	20,442	19,831
1992	18,847	18,846	18,223
1993	10,738	10,737	11,378
Wyoming			
1991	2,195	2,195	8,428
1992	3,002	3,002	2,518
1993	4,578	4,578	6,146

Source: MSIS files, HCFA-2082 reports, and HCFA-64 reports.

Table 2S-13

MEDICAID HOME HEALTH SERVICES AND HCBS EXPENDITURES REPORTED BY DIFFERENT DATA SOURCES BY STATE AND FISCAL YEAR
(in thousands)

	Data Source		
	MSIS Files	HCFA-2082	HCFA-64
Alabama			
1990	$45,024	$45,017	$43,429
1991	47,487	47,480	47,062
1992	52,279	52,270	53,291
1993	63,915	63,912	61,350
Arkansas			
1990	26,395	25,924	26,880
1991	29,362	29,072	31,953
1992	45,879	45 259	54,510
1993	55,224	54,765	69,784
Delaware			
1990	8,125	8,125	8,282
1991	7,634	7,634	14,747
1992	8,401	8,401	16,949
1993	10,994	10,994	22,858
Georgia			
1990	52,934	52,934	61,642
1991	54,600	54,376	66,417
1992	61,910	61,904	77,461
1993	63,425	63,422	81,890
Iowa			
1990	16,322	16,312	9,628
1991	19,621	19,546	11,473
1992	25,109	25,019	16,585
1993	29,685	29,541	19,673
Kentucky			
1991	71,653	71,655	69,450
1992	85,313	85,313	85,612
1993	99,392	99,392	98,057

Table 2S-13 (Concluded)

MEDICAID HOME HEALTH SERVICES AND HCBS EXPENDITURES REPORTED BY DIFFERENT DATA SOURCES BY STATE AND FISCAL YEAR (in thousands)

	Data Source		
	MSIS Files	HCFA-2082	HCFA-64
Maine			
1990	$ 25,887	$ 25,888	$ 26,808
1991	28,239	28,239	27,909
1992	32,507	32,506	36,562
1993	39,722	39,721	41,853
Nevada			
1990	5,723	5,723	5,263
1991	7,292	7,292	6,778
1992	11,195	11,195	9,753
1993	13,313	13,313	10,996
New Jersey			
1990	175,539	175,539	186,424
1991	193,375	193,375	234,870
1992	244,612	244,611	253,568
1993	298,907	298,794	313,764
Pennsylvania			
1991	12,253	13,213	149,684
1992	19,013	19,001	181,663
1993	21,912	21,898	248,486
Vermont			
1990	14,206	14,198	14,544
1991	17,827	17,810	17,521
1992	26,572	26,568	26,880
1993	35,003	34,991	35,265
Wyoming			
1991	714	714	2,225
1992	699	698	11,404
1993	1,191	1,186	14,468

Source: MSIS files, HCFA-2082 reports, and HCFA-64 reports.

Table 2S-14

MONTHLY COST OF ACUTE CARE FOR LONG-TERM CARE RECIPIENTS IN TRADITIONAL MEDICAID PROGRAMS BY STATE AND LONG-TERM CARE RECIPIENT GROUP, FY 90

	EPD Institutionalized	MR/DD Institutionalized	Significant Home Health Users
Aged			
Alabama	$123.80	$172.16	$ 145.70
Arkansas	131.10	27.98	132.92
Delaware	103.42	203.18	173.98
Georgia	150.26	167.60	170.33
Iowa	181.28	61.14	244.55
Maine	162.43	187.37	193.75
Nevada	170.64	20.38	297.48
New Jersey	159.38	418.53	158.47
Vermont	147.22	171.25	213.53
Mean	147.83	158.78	192.23
Disabled			
Alabama	220.83	78.48	259.76
Arkansas	187.98	86.69	286.83
Delaware	401.80	51.71	502.18
Georgia	309.03	85.17	415.19
Iowa	312.99	156.34	684.68
Maine	495.79	176.42	456.86
Nevada	968.47	206.23	1,943.02
New Jersey	667.04	203.18	554.80
Vermont	459.29	186.45	815.17
Mean	447.13	136.88	657.61

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

Table 2S-15

MONTHLY COST OF ACUTE CARE FOR LONG-TERM CARE RECIPIENTS IN TRADITIONAL MEDICAID PROGRAMS BY STATE AND LONG-TERM CARE RECIPIENT GROUP, FY 91

	EPD Institutionalized	MR/DD Institutionalized	Significant Home Health Users
Aged			
Alabama	$ 154.21	$146.61	$ 172.77
Arkansas	154.82	80.60	146.61
Delaware	133.83	132.62	246.38
Georgia	184.93	87.30	198.62
Iowa	224.78	194.36	318.46
Kentucky	214.13	77.56	197.40
Maine	204.10	227.82	243.03
Nevada	197.71	17.95	196.49
New Jersey	207.14	392.68	239.08
Pennsylvania	222.95	207.14	247.90
Vermont	171.25	209.57	233.60
Wyoming	165.77	63.27	358.92
Mean	186.45	153.00	233.30
Disabled			
Alabama	292.91	82.43	335.80
Arkansas	231.78	137.79	370.48
Delaware	897.60	98.55	1,182.90
Georgia	347.66	116.50	621.41
Iowa	383.25	202.27	693.20
Kentucky	615.94	138.70	292.00
Maine	598.90	228.13	745.21
Nevada	1,248.91	223.87	1,181.99
New Jersey	882.08	235.43	755.25
Pennsylvania	406.06	139.92	415.49
Vermont	524.38	196.19	1,226.70
Wyoming	824.90	91.86	793.57
Mean	604.68	157.56	717.83

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

Table 2S-16

MONTHLY COST OF ACUTE CARE FOR LONG-TERM CARE RECIPIENTS IN TRADITIONAL MEDICAID PROGRAMS BY STATE AND LONG-TERM CARE RECIPIENT GROUP, FY 92

	EPD Institutionalized	MR/DD Institutionalized	Significant Home Health Users
Aged			
Alabama	$ 193.15	$213.53	$ 225.08
Arkansas	181.59	171.85	164.25
Delaware	145.70	253.07	230.25
Georgia	200.14	476.33	206.83
Iowa	239.08	173.98	320.29
Kentucky	275.27	347.66	265.84
Maine	227.21	259.45	344.62
Nevada	264.93	26.77	366.52
New Jersey	182.80	278.01	299.30
Pennsylvania	269.19	246.98	309.64
Vermont	190.71	56.27	271.62
Wyoming	166.38	74.22	622.63
Mean	211.40	214.74	302.34
Disabled			
Alabama	391.46	125.62	469.03
Arkansas	295.65	153.30	482.41
Delaware	921.93	208.35	1,080.40
Georgia	381.73	114.06	769.54
Iowa	480.89	229.04	819.12
Kentucky	778.36	188.89	410.93
Maine	843.15	247.90	1,022.61
Nevada	2,204.90	318.77	2,530.06
New Jersey	748.55	233.90	1,316.43
Pennsylvania	570.62	189.50	625.37
Vermont	704.75	232.69	806.35
Wyoming	685.90	91.25	883.91
Mean	750.68	194.36	934.70

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

Table 2S-17

MONTHLY COST OF ACUTE CARE FOR LONG-TERM CARE RECIPIENTS IN TRADITIONAL MEDICAID PROGRAMS BY STATE AND LONG-TERM CARE RECIPIENT GROUP, FY 93

	EPD Institutionalized	MR/DD Institutionalized	Significant Home Health Users
Aged			
Alabama	$ 183.72	$135.96	$ 226.91
Arkansas	188.89	155.43	218.09
Delaware	159.38	149.65	305.08
Georgia	223.56	140.22	214.74
Iowa	271.93	396.94	345.53
Kentucky	265.23	244.25	265.23
Maine	233.30	447.73	312.68
Nevada	231.47	27.07	325.46
New Jersey	293.83	515.26	496.10
Pennsylvania	340.06	304.78	371.08
Vermont	156.65	68.44	265.84
Wyoming	179.15	86.08	357.09
Mean	227.21	222.65	308.73
Disabled			
Alabama	441.35	108.89	829.46
Arkansas	308.73	213.83	598.30
Delaware	596.78	135.35	1,182.90
Georgia	395.42	106.46	839.50
Iowa	446.82	247.59	832.50
Kentucky	697.15	181.89	517.69
Maine	847.10	344.93	1,437.19
Nevada	1,780.29	211.70	2,652.94
New Jersey	1,393.39	318.46	1,529.05
Pennsylvania	626.89	205.62	563.32
Vermont	889.99	276.18	658.83
Wyoming	636.93	157.86	903.38
Mean	754.94	208.96	1,045.42

Source: MSIS files, HCFA-64 reports, and information from Office of Medicaid Policy, HCFA.

Table 2S-18

LONG-TERM CARE USER RATIO AND NUMBER OF USER MONTHS IN TRADITIONAL MEDICAID PROGRAMS BY LONG-TERM CARE RECIPIENT CATEGORY AND STATE, FY 90

	User Months				
	Institutionalized	Significant Home Health Users	Total	SSI Recipient Months*	Long-Term Care User Ratio
EPD Aged					
Alabama	139,926	40,162	180,089	609,654	0.2954
Arkansas	158,257	59,672	217,929	336,018	0.6486
Delaware	17,151	3,474	20,625	20,676	0.9975
Georgia	261,680	52,360	314,040	616,515	0.5094
Iowa	160,023	3,706	163,729	92,541	1.7693
Maine	80,183	7,798	87,981	83,595	1.0525
Nevada	20,367	4,065	24,433	50,817	0.4808
New Jersey	268,113	25,848	293,961	355,917	0.8259
Vermont	10,939	1,298	12,237	31,344	0.3904
Mean					0.7744
EPD Non-Aged					
Alabama	30,776	18,084	48,860	961,944	0.0508
Arkansas	37,207	16,290	53,496	548,268	0.0976
Delaware	2,431	1,092	3,522	72,165	0.0488
Georgia	67,009	46,712	113,721	1,243,408	0.0915
Iowa	19,162	4,013	23,175	279,735	0.0828
Maine	5,501	1,579	7,081	192,738	0.0367
Nevada	4,570	652	5,222	73,047	0.0715
New Jersey	48,850	15,429	64,279	852,618	0.0754
Vermont	1,115	6,156	7,271	85,026	0.0855
Mean					0.0712

Table 2S-18 (Concluded)

LONG-TERM CARE USER RATIO AND NUMBER OF USER MONTHS IN TRADITIONAL MEDICAID PROGRAMS BY LONG-TERM CARE RECIPIENT CATEGORY AND STATE, FY 90

	User Months				
	Institutionalized	Significant Home Health Users	Total	SSI Recipient Months*	Long-Term Care User Ratio
MR/DD Aged					
Alabama	383	903	1,287	609,654	0.0021
Arkansas	6	23	29	336,018	0.0001
Delaware	241	452	693	20,676	0.0335
Georgia	141	135	277	616,515	0.0004
Iowa	0	0	0	92,541	0.0000
Maine	605	1,367	1,972	83,595	0.0236
Nevada	0	0	0	50,817	0.0000
New Jersey	5,020	10,258	15,278	355,917	0.0429
Vermont	179	4,883	5,062	31,344	0.1615
Mean					0.0294
MR/DD Non-Aged					
Alabama	15,211	28,931	44,142	961,944	0.0459
Arkansas	9,155	25,824	34,979	548,268	0.0638
Delaware	4,624	4,847	9,470	72,165	0.1312
Georgia	20,197	25,577	45,774	1,243,408	0.0368
Iowa	22,771	11,743	34,515	279,735	0.1234
Maine	7,854	10,735	18,589	192,738	0.0964
Nevada	2,313	2,498	4,811	73,047	0.0659
New Jersey	38,111	41,084	79,196	852,618	0.0929
Vermont	2,294	9,040	11,333	85,026	0.1333
Mean					0.0877

Source: MSIS files.

* For the aged, these months equal the number of months for which aged individuals received cash assistance (mainly from SSI). For the non-aged, these months equal the number of months for which disabled individuals received cash assistance (mainly from SSI).

Table 2S-19

LONG-TERM CARE USER RATIO AND NUMBER OF USER MONTHS IN TRADITIONAL MEDICAID PROGRAMS BY LONG-TERM CARE RECIPIENT CATEGORY AND STATE, FY 91

	User Months				
	Institutionalized	Significant Home Health Users	Total	SSI Recipient Months*	Long-Term Care User Ratio
EPD Aged					
Alabama	151,056	42,615	193,230	581,225	0.3332
Arkansas	168,402	61,871	230,273	321,156	0.7170
Delaware	20,798	3,988	24,786	20,586	1.2040
Georgia	283,946	72,678	356,623	597,399	0.5970
Iowa	174,283	4,616	178,899	89,118	2.0074
Kentucky	151,006	20,287	171,293	394,947	0.4337
Maine	71,761	7,325	79,086	80,421	0.9834
Nevada	22,839	4,100	26,938	53,277	0.5056
New Jersey	283,536	26,583	310,119	372,765	0.8319
Pennsylvania	459,363	125	459,488	496,977	0.9246
Vermont	11,145	3,833	14,978	30,375	0.4931
Wyoming	18,499	6	18,506	8,484	2 1812
Mean					0.9344
EPD Non-Aged					
Alabama	31,962	21,277	53,239	1,023,228	0.0520
Arkansas	35,315	13,047	48,362	591,936	0.0817
Delaware	2,810	2,162	4,972	76,482	0.0650
Georgia	70,413	38,983	109,396	1,314,198	0.0832
Iowa	21,059	5,238	26,296	301,368	0.0873
Kentucky	27,342	14,572	41,913	1,061,277	0.0395
Maine	4,938	2,271	7,209	203,592	0.0354
Nevada	4,838	965	5,803	82,827	0.0701
New Jersey	53,884	19,592	73,476	904,569	0.0812
Pennsylvania	44,276	3,403	47,679	1,805,248	0.0264
Vermont	1,478	7,623	9,102	92,022	0.0989
Wyoming	2,048	119	2,167	34,470	0.0629
Mean					0.0653

Table 2S-19 (Concluded)

LONG-TERM CARE USER RATIO AND NUMBER OF USER MONTHS IN TRADITIONAL MEDICAID PROGRAMS BY LONG-TERM CARE RECIPIENT CATEGORY AND STATE, FY 91

	User Months				
	Institutionalized	Significant Home Health Users	Total	SSI Recipient Months*	Long-Term Care User Ratio
MR/DD Aged					
Alabama	476	1,213	1,689	581,229	0.0029
Arkansas	20	66	86	321,156	0.0003
Delaware	277	418	695	20,586	0.0338
Georgia	225	273	498	597,399	0.0008
Iowa	34	8	42	89,118	0.0005
Kentucky	24	80	104	394,947	0.0003
Maine	668	1,395	2,064	80,421	0.0257
Nevada	0	0	0	53,277	0.0000
New Jersey	5,097	10,514	15,611	372,765	0.0419
Pennsylvania	4,530	8,740	13,270	496,977	0.0267
Vermont	194	3,159	3,353	30,375	0.1104
Wyoming	0	212	212	8,484	0.0250
Mean					0.0223
MR/DD Non-Aged					
Alabama	15,147	30,210	45,357	1,023,228	0.0443
Arkansas	12,122	30,046	42,168	591,936	0.0712
Delaware	4,454	6,083	10,537	76,482	0.1378
Georgia	20,190	21,114	41,303	1,314,198	0.0314
Iowa	23,645	11,277	34,921	301,368	0.1159
Kentucky	14,591	17,942	32,533	1,061,277	0.0307
Maine	7,803	11,792	19,595	203,592	0.0962
Nevada	2,444	2,007	4,450	82,827	0.0537
New Jersey	38,035	46,792	84,827	904,569	0.0938
Pennsylvania	69,346	97,784	167,130	1,805,248	0.0926
Vermont	2,369	11,511	13,880	92,022	0.1508
Wyoming	1,146	4,530	5,675	34,470	0.1646
Mean					0.0903

Source: MSIS files.

* For the aged, these months equal the number of months for which aged individuals received cash assistance (mainly from SSI). For the non-aged, these months equal the number of months for which disabled individuals received cash assistance (mainly from SSI).

Table 2S-20

LONG-TERM CARE USER RATIO AND NUMBER OF USER MONTHS IN TRADITIONAL MEDICAID PROGRAMS BY LONG-TERM CARE RECIPIENT CATEGORY AND STATE, FY 92

	User Months				
	Institutionalized	Significant Home Health Users	Total	SSI Recipient Months*	Long-Term Care User Ratio
EPD Aged					
Alabama	158,575	42,351	200,926	556,692	0.3609
Arkansas	171,382	70,772	242,154	308,301	0.7854
Delaware	21,739	4,181	25,920	20,469	1.2663
Georgia	285,574	67,409	352,983	589,350	0.5989
Iowa	179,745	6,265	186,011	86,310	2.1551
Kentucky	157,691	22,665	180,356	355,938	0.5067
Maine	67,959	7,541	75,500	77,229	0.9776
Nevada	24,671	3,962	28,634	56,847	0.5037
New Jersey	310,500	51,981	362,481	386,379	0.9381
Pennsylvania	549,157	1,314	550,471	498,570	1.1041
Vermont	12,058	1,931	13,989	28,974	0.4828
Wyoming	18,894	2	18,895	8,844	2.1365
Mean					0.9847
EPD Non-Aged					
Alabama	33,830	27,261	61,090	1,119,102	0.0546
Arkansas	36,592	17,467	54,059	660,309	0.0819
Delaware	3,095	2,908	6,002	82,164	0.0731
Georgia	81,183	36,037	117,220	1,425,372	0.0822
Iowa	20,623	6,543	27,166	329,664	0.0824
Kentucky	27,713	11,739	39,452	1,159,836	0.0340
Maine	4,561	3,355	7,916	218,007	0.0363
Nevada	4,825	1,184	6,010	97,662	0.0615
New Jersey	59,915	39,920	99,835	995,940	0.1002
Pennsylvania	51,182	7,394	58,576	1,974,606	0.0297
Vermont	1,600	3,136	4,736	102,387	0.0463
Wyoming	1,887	221	2,108	40,572	0.0520
Mean					0.0612

Table 2S-20 (Concluded)

LONG-TERM CARE USER RATIO AND NUMBER OF USER MONTHS IN TRADITIONAL MEDICAID PROGRAMS BY LONG-TERM CARE RECIPIENT CATEGORY AND STATE, FY 92

	User Months				
	Institutionalized	Significant Home Health Users	Total	SSI Recipient Months*	Long-Term Care User Ratio
MR/DD Aged					
Alabama	376	944	1,320	556,692	0.0024
Arkansas	37	88	124	308,301	0.0004
Delaware	259	376	635	20,469	0.0310
Georgia	284	476	759	589,350	0.0013
Iowa	8	2	10	86,310	0.0001
Kentucky	34	140	175	355,938	0.0005
Maine	744	691	1,435	77,229	0.0186
Nevada	0	0	0	56,847	0.0000
New Jersey	4,760	14,041	18,801	386,379	0.0487
Pennsylvania	4,649	10,287	14,936	498,570	0.0300
Vermont	183	3,156	3,339	28,974	0.1152
Wyoming	0	209	209	8,844	0.0236
Mean					0.0226
MR/DD Non-Aged					
Alabama	14,585	28,479	43,064	1,119,102	0.0385
Arkansas	16,314	39,598	55,912	660,309	0.0847
Delaware	4,770	6,909	11,679	82,164	0.1421
Georgia	20,438	25,182	45,619	1,425,372	0.0320
Iowa	23,992	15,715	39,707	329,664	0.1204
Kentucky	14,601	19,346	33,947	1,159,836	0.0293
Maine	7,471	13,611	21,081	218,007	0.0967
Nevada	2,632	1,778	4,410	97,662	0.0452
New Jersey	39,705	77,539	117,244	995,940	0.1177
Pennsylvania	72,183	115,227	187,410	1,974,606	0.0949
Vermont	2,336	7,543	9,879	102,387	0.0965
Wyoming	700	7,153	7,853	40,572	0.1935
Mean					0.0910

Source: MSIS files.

* For the aged, these months equal the number of months for which aged individuals received cash assistance (mainly from SSI). For the non-aged, these months equal the number of months for which disabled individuals received cash assistance (mainly from SSI).

** Ratio from 1990 used due to suspected incomplete data.

Table 2S-21

LONG-TERM CARE USER RATIO AND NUMBER OF USER MONTHS IN TRADITIONAL MEDICAID PROGRAMS BY LONG-TERM CARE RECIPIENT CATEGORY AND STATE, FY 93

	User Months				
	Institutionalized	Significant Home Health Users	Total	SSI Recipient Months*	Long-Term Care User Ratio
EPD Aged					
Alabama	162,354	45,599	207,952	530,889	0.3917
Arkansas	167,785	69,837	237,622	291,318	0.8157
Delaware	22,172	4,471	26,642	20,355	1.3089
Georgia	280,907	72,476	353,383	575,253	0.6143
Iowa	182,491	7,002	189,493	81,804	2.3164
Kentucky	157,922	26,466	184,388	345,327	0.5340
Maine	82,158	7,488	89,646	75,114	1.1935
Nevada	25,490	4,733	30,224	61,086	0.4948
New Jersey	307,812	53,614	361,425	407,388	0.8872
Pennsylvania	511,540	1,351	512,891	502,212	1.0213
Vermont	13,337	402	13,739	27,288	0.5035
Wyoming	17,623	2	17,624	8,637	2.0405
Mean					1.0101
EPD Non-Aged					
Alabama	35,599	32,837	68,436	1,269,526	0.0539
Arkansas	36,566	17,242	53,808	749,364	0.0718
Delaware	3,036	5,440	8,476	89,469	0.0947
Georgia	96,545	37,982	134,527	1,572,072	0.0856
Iowa	20,650	7,455	28,105	365,058	0.0770
Kentucky	26,995	16,943	43,937	1,315,348	0.0334
Maine	4,577	2,287	6,864	239,778	0.0286
Nevada	4,811	1,978	6,789	118,521	0.0573
New Jersey	64,959	53,056	118,016	1,122,066	0.1052
Pennsylvania	47,549	7,058	54,606	2,180,242	0.0250
Vermont	1,671	3,154	4,825	113,190	0.0426
Wyoming	1,838	129	1,968	48,162	0.0409
Mean					0.0597

Table 2S-21 (Concluded)

LONG-TERM CARE USER RATIO AND NUMBER OF USER MONTHS IN TRADITIONAL MEDICAID PROGRAMS BY LONG-TERM CARE RECIPIENT CATEGORY AND STATE, FY 93

	User Months				
	Institutionalized	Significant Home Health Users	Total	SSI Recipient Months*	Long-Term Care User Ratio
MR/DD Aged					
Alabama	420	1,894	2,314	530,889	0.0044
Arkansas	29	90	119	291,318	0.0004
Delaware	235	535	769	20,355	0.0378
Georgia	271	656	927	575,253	0.0016
Iowa	12	2	14	81,804	0.0002
Kentucky	44	318	362	345,327	0.0010
Maine	649	21	670	75,114	0.0089
Nevada	0	0	0	61,086	0.0000
New Jersey	4,655	12,966	17,621	407,388	0.0433
Pennsylvania	4,776	14,670	19,446	502,212	0.0387
Vermont	144	4,227	4,371	27,288	0.1602
Wyoming	20	353	373	8,637	0.0432
Mean					0.0283
MR/DD Non-Aged					
Alabama	14,921	49,038	63,959	1,269,526	0.0504
Arkansas	12,716	40,171	52,886	749,364	0.0706
Delaware	4,733	9,349	14,082	89,469	0.1574
Georgia	20,282	28,772	49,054	1,572,072	0.0312
Iowa	25,030	18,121	43,151	365,058	0.1182
Kentucky	14,625	23,901	38,526	1,315,348	0.0293
Maine	7,224	13,947	21,170	239,778	0.0883
Nevada	2,649	3,025	5,674	118,521	0.0479
New Jersey	39,298	83,467	122,764	1,122,066	0.1094
Pennsylvania	66,681	134,681	201,362	2,180,242	0.0924
Vermont	1,678	10,467	12,145	113,190	0.1073
Wyoming	1,032	8,421	9,453	48,162	0.1963
Mean					0.0915

Source: MSIS files.

* For the aged, these months equal the number of months for which aged individuals received cash assistance (mainly from SSI). For the non-aged, these months equal the number of months for which disabled individuals received cash assistance (mainly from SSI).

** Ratio from 1990 used due to suspected incomplete data.

3. MEDICAL CARE UTILIZATION BY LONG-TERM CARE MEDICAID BENEFICIARIES

Introduction

An analysis of medical care utilization provides important information about the number and types of services being provided within a health care program. Because utilization of medical care services directly impacts expenses and financial viability, and because utilization can also reflect access to and appropriateness of medical services, a utilization analysis is a critical component of any health care program assessment. Low utilization rates can signal problems with under-utilization of services, while high utilization rates create strain on overall costs.

The Arizona Long-Term Care System (ALTCS) provides acute and long-term care services to beneficiaries who are at risk of institutionalization. This chapter compares the medical care utilization of ALTCS beneficiaries against that of long-term beneficiaries in a more traditional fee-for-service Medicaid program. New Mexico was chosen as a comparison state because of the similar geography, climate, population demographic characteristics, and health care resources.

The analysis covers medical care services received from January 1, 1991 through September 30, 1992. Services include those reimbursed by the ALTCS program in Arizona and the Medicaid program in New Mexico, and those reimbursed by the Medicare program. Previous analyses of this population have not included both Medicaid and Medicare data.

The chapter is organized as follows. First, we outline the study methodology including information on data sources, construction of the study population, data definitions, and data quality issues. The next section describes the study population. The long-term care delivery systems in the two states are described and the populations examined by placement and beneficiary demographic, eligibility, and health status characteristics.

In the next section, we examine descriptive utilization statistics for the population and for subpopulations of interest. For the main types of services, data are examined for the elderly and physically disabled (EPD) population in home and community-based services (HCBS) and nursing home placements by program source (Medicare and Medicaid) and for the mentally retarded/developmentally disabled (MR/DD) population by program source. This section also examines utilization for eight EPD groups and four MR/DD groups of interest.

The next section analyzes selected utilization measures in a multivariate context. The analysis examines if long-term care beneficiaries in the two states have different utilization after correcting for placement, demographic, and eligibility characteristics. The final section of the chapter summarizes the chapter's findings and presents policy implications.

Methodology

Below we discuss the data sources for the analyses, construction of the study population, definitions, and data quality issues.

Data Sources

The utilization data examined in Arizona are encounter data submitted by the long-term care program contractors to the Arizona Health Care Cost Containment System (AHCCCS) and fee-for-service claims processed by AHCCCS, as well as Medicare data from the Health Care Financing Administration's (HCFA's) National Claims History (NCH) database. In New Mexico, Medicaid data include Medicaid claims processed by the New Mexico fiscal intermediary, First Health Services, and by the Coordinated Community In-Home Care (CCIC) division of New Mexico's Medical Assistance Bureau; as well as the HCFA Medicare data in the

NCH database. These data were transferred from AHCCCS to Laguna Research Associates (LRA) in October and November 1993, from First Health Services to LRA in July 1993, from CCIC to LRA in September 1993, and from HCFA to LRA in May 1994. Thus the analysis rests on analyses of encounter and claims data from AHCCCS, claims data from the New Mexico Medicaid program, and Medicare claims data from HCFA's NCH database for beneficiaries in Arizona and New Mexico who received chronic long-term care services during our study period.

Combining Medicare and Medicaid data required linkage of information by health insurance claim number and exclusion of data contained in both data files. It was complicated by the different systems for handling joint Medicare/Medicaid (crossover) claims in the two states. In New Mexico, crossover claims were processed separately from other Medicaid claims. The identification of crossover claims in Arizona was problematic because the crossover indicator was incorrectly coded in the encounter data during our study period. In order to correct AHCCCS encounter data for crossover activity, all services received by a given beneficiary with the same service type and service date as a service in the Medicare data files were excluded from the AHCCCS data. For consistency, this exclusion was also performed for the New Mexico data.

Constructing the Study Population

The study population consists of 18,794 ALTCS beneficiaries, representing 22,735 person-years of coverage, and 9,284 New Mexico long-term care beneficiaries with 9,938 person-years of coverage. Beneficiaries had to have some long-term care eligibility during the time period January 1, 1991 through September 30, 1992 and have received at least one long-term care service [i.e., nursing home or home and community-based (HCB) service] during that same period. Beneficiaries enrolled in Medicare health maintenance organizations (HMOs) were excluded from the study population because Medicare data were not available for them and Medicaid data available through AHCCCS were likely to be unreliable. A small number of beneficiaries were also excluded because of incomplete data.

ALTCS beneficiaries represented in the study population include those who are not enrolled with a capitated ALTCS program contractor. This includes 564 person-years for fee-for-service beneficiaries, one person-year for those with temporary fee-for-service enrollment status, and 243 person-years for long-term care beneficiaries served by Indian tribes. We decided to include these groups because they represent less than six percent of the total ALTCS person-years and have utilization rates that while a little higher are similar to those for the total group. In addition, we believe that employing this definition provides results consistent with the utilization of the ALTCS program as a whole.

Definitions

Utilization is reported as a rate of use per person-year of eligibility. Rates of utilization are calculated by dividing the number of services used in the program from January 1991 through September 1992 by the number of person-years of eligibility during the same time period. Rates of utilization are calculated separately for each type of service (evaluation and management services, procedures, tests, etc.). The categorization employed for institutional services (see Figures 3-1 and 3-2) was developed by LRA based on previous LRA categorizations and on those developed by the Minnesota Utilization Data Definitions Committee.[20] The categorization employed for non-institutional services (see Figure 3-3) is one adapted by LRA from the Urban Institute Type-of-Service Classification System.[21] Institutional services are defined as those typically billed on a UB-92 claim form. Non-institutional services are those typically billed on a HCFA 1500 claim form.

Data from the Medicare and Medicaid data files are combined in the final analysis presented. Since crossover data were excluded from the Medicaid data files, the resulting Medicaid number and dollar fields do not include crossover claims. The dollars in the allowed charges field of the ALTCS data are not actual paid amounts determined from the capitation payments but the amount Arizona would value the service if it had been on a fee-for-service claim.[22] Paid amounts on AHCCCS encounters equal allowed charges minus any third party liability.

Figure 3-1

MAJOR CATEGORIES IN INSTITUTIONAL SERVICES CLASSIFICATION SYSTEM

- Inpatient Hospital
  - Admissions
  - Days
  - Ancillary Services
    - Special Room
      - OR-Type Room
      - Emergency Room
      - Other Rooms
    - Laboratory
    - Radiology
    - Pharmacy/Blood
    - Supplies/Equipment/Ambulance
    - Therapies, Social/Psychological, Rehabilitation Services
    - Special Tests and Procedures
    - Anesthesia
    - Professional Services

- Outpatient Hospital
  - Special Room
    - OR-Type Room
    - Emergency Room
    - Clinic
    - Other Rooms
  - Laboratory
  - Radiology
  - Pharmacy/Blood
  - Supplies/Equipment/Ambulance
  - Therapies, Social/Psychological, Rehabilitation Services
  - Special Tests and Procedures
  - Anesthesia

- Nursing Home
  - Admissions
  - Days
  - Ancillary Services
    - Leave of Absence
    - Supplies/Equipment/Ambulance
    - Therapies and Social Services

- Home Health Agency
  - Therapy Visits
  - Skilled Nursing Visits
  - Social Service Visits
  - HHA Aide Visits
  - Oxygen Equipment and Supplies

Figure 3-2

MAJOR CATEGORIES FOR INPATIENT HOSPITAL CARE

- Admissions
  - Mental
  - Medical
  - Surgical

- Days
  - Mental
  - Medical
  - Surgical

- Ancillary Services
  - Mental
  - Medical
  - Surgical

Figure 3-3

MAJOR CATEGORIES IN NON-INSTITUTIONAL CLASSIFICATION SYSTEM

- Evaluation and Management Services
    - Office Visits
    - Hospital Visits
    - Emergency Room Services
    - Nursing Home and Home Visits
    - Consultations
    - Specialty-Specific Services

- Procedures
    - Major Procedures
        - Cardiovascular
        - Orthopedic
        - Other
    - Ambulatory Procedures
        - Eye
        - Other
    - Minor Procedures
    - Oncology Services
    - Endoscopy Procedures
    - Dialysis Services

- Imaging
    - Standard Imaging
    - Advanced Imaging
    - Sonography
    - Imaging/Procedure

- Tests
    - Lab Tests
    - Other Tests

- Other
    - Anesthesiology
    - Transportation
    - Supplies/Equipment
    - Oxygen and Supplies
    - Other

- Home and Community-Based Services
    - Adult Day Health Services
    - Home Delivered Meals
    - Home Health Nursing
    - Homemaker/Personal Care/Attendant Care/Home Health Aide
    - Respite
    - Special Services

Data Quality Issues

Although the reporting of encounter data in AHCCCS has been problematic, collection has improved dramatically since the beginning of the program[23] and has been relatively stable for the last several years. Our assessment is that while the data are without question not perfect, the encounter data magnitude and quantity are in general adequate to use to conduct a utilization analysis. Some data, considered to be of poor quality, are excluded from the analyses.

A Summary Statistical Report prepared as part of this project was used in an effort to identify data to be excluded from analysis.[24] The report describes in detail the process of creating the analysis files and presents basic descriptive tables that display the numbers in various population groups and the rates of utilization per person-year of coverage. These utilization tables are generated separately for Medicare and Medicaid covered services. Data are presented in the tables by state and beneficiary type (EPD or MR/DD). Data are also presented for the different fiscal years (FY 91 and FY 92) and for placements in HCBS care and in nursing homes. Review of these data pinpointed several major areas of concern:

1. The distribution of the Arizona MR/DD population by placement seemed to be incorrect. Data in the tables indicated that only 80% of the person-years of coverage were served in HCBS care, while other data from the program indicate that this rate is too low. This suggests that the placement field in the AHCCCS data files for the period covered by our study is incorrect for this population.
2. The Arizona MR/DD Medicaid non-institutional utilization data have both units and dollar fields that appear unreasonable. These data are excluded from further analysis.

Thus the most serious problems encountered were with respect to the Arizona MR/DD population. Coordination of data systems between the MR/DD long-term care contractor, the Arizona Department of Economic Security (DES), and AHCCCS are known to have been problematic during the time period being studied.[25]

The Study Population

This section begins with a description of the long-term care delivery system in Arizona and New Mexico. We then present statistics on the characteristics of the long-term care populations in the two states.

The Long-Term Care Delivery Systems

The long-term care delivery systems in Arizona and in New Mexico cover nursing home care as well as HCB services. Eligibility for the long-term care program in each state requires that an individual meet specified financial and medical criteria. In this section, we provide more detailed descriptions of each state's long-term care program.

Financial eligibility for ALTCS is extended to those with incomes up to 300 percent of the supplemental security income (SSI) level ($1,266 per month in calendar year 1991 and $1,302 per month in 1992). Beneficiaries must be certified as needing long-term care services using a preadmission screening (PAS) tool administered by an ALTCS-employed nurse or social worker in a face-to-face interview with the applicant. The PAS, which was designed to identify beneficiaries who are at risk of institutionalization, records detailed data on patient demographics, functional and health status, psychosocial behavior, environmental problems, social supports, services being received, and services needed but not received.

Once deemed eligible for the ALTCS program, beneficiaries are assigned to the long-term care program contractor that serves their county. AHCCCS, the state agency with administrative responsibility for ALTCS, contracts with one entity in each county to assume responsibility for providing acute care and long-term care services to EPD eligibles within the county. DES is required to serve as the long-term care contractor for all MR/DD beneficiaries statewide. Each contractor is paid an individually-negotiated monthly capitation payment per enrollee. The capitation rate varies by county but not by any other beneficiary characteristics. During FY 91 and FY 92, there were six EPD contractors covering 13 counties. EPD eligibles in the remaining two counties were covered by AHCCCS' fee-for-service network. Upon enrollment, clients are assessed by the contractor and placed in an appropriate institutional or HCBS setting.

The income eligibility level for long-term care services in New Mexico was set at $1,043 per month in calendar year 1991 and $1,082 per month in calendar year 1992. The amount increases each year by the Social Security Cost of Living Adjustment. Medical eligibility is determined by the New Mexico Medicaid Professional Review Organization (PRO) under contract with the State. As of September 1993, Blue Cross and Blue Shield of New Mexico became the contracted PRO, however, the New Mexico Medical Review Association served as the PRO during the time frame covered by this study. A long-term care assessment abstract form [referred to as the New Mexico Abstraction Form (NMAF)] is used to determine medical eligibility in New Mexico. For nursing home clients, the NMAF is completed by long-term care facility personnel and sent to the PRO for approval. Prior to a nursing home admission, the form may be completed by a physician with involvement of the nursing home staff. If done after admission to the nursing home, the facility is at risk for nonpayment if the PRO concludes that the client was not medically qualified for Medicaid coverage. For clients who are expected to receive HCB services, the NMAF is completed by a licensed physician and sent to the PRO for verification of medical eligibility.

Institutional services and HCB services are administered by separate agencies within New Mexico's Human Services Department. Upon entry to the New Mexico long-term care system, an individual must choose between institutional and HCB services. Oversight of the institutional services program is the responsibility of the Medical Assistance Bureau. The HCBS program, which operates under a 2176 program waiver, was administered by the CCIC division during our study period. The CCIC program consists of four waiver programs, including a program for the disabled and elderly and a program for the developmentally disabled.

Consistent with the traditional fee-for-service payment methodology, there is no centralized coordination in the payment for services delivered to long-term care recipients in New Mexico. Long-term care facilities and HCBS providers are reimbursed retrospectively, based on per diem or per unit rates set prospectively by the State. Acute care services delivered to long-term care beneficiaries are reimbursed on a fee-for-service basis according to a fee-schedule.

The programs in both states cover a similar range of long-term care services: nursing home, home health care, homemaker, personal care, hospice, respite, transportation, and case management.[26] Neither state has regulations regarding the number of physician visits for long-term care beneficiaries. There is no minimum number of visits required for nursing home beneficiaries and no limits or caps on the number of visits.

Population Characteristics

Below we present characteristics of the study population. First, we describe the beneficiary type and placement status. Next, we examine sociodemographic characteristics and health status indicators. Data presented are weighted by person-years of coverage.

Type of Beneficiaries and Type of Placement

Table 3-1 shows basic information on the number of person-years of coverage for EPD beneficiaries and MR/DD beneficiaries. EPD person-years are broken down into those for HCBS placements and those for nursing home placements. As can be seen among EPD beneficiaries, in Arizona 20% of the 14,506 person-years of coverage are for those in HCBS care while 80% are for those in nursing home care. Twenty-one percent of the 8,215 EPD person-years in New Mexico are for HCBS placements and 79% for nursing home placements. Health status information is available only for a portion of the EPD beneficiaries in New Mexico: 22% of the total EPD person-years, 31% of HCBS

Table 3-1

NUMBER OF PERSON-YEARS OF COVERAGE BY BENEFICIARY TYPE, STATE AND PLACEMENT FOR JANUARY 1991 - SEPTEMBER 1992

	Arizona			New Mexico		
	Total	HCBS	NH	Total	HCBS	NH
EPD	14,506	2,894	11,612	8,215	1,714	6,501
EPD with Health Status Data	14,506	2,894	11,612	1,823	535	1,288
MR/DD	8,229	N/A	N/A	1,723	479	1,244

N/A: Not Available.

EPD person-years, and 20% of nursing home EPD person-years. Data on health status were coded by our subcontractor, Lovelace Medical Foundation, directly from the NMAF. However, this coding was done only for the subsample of beneficiaries newly placed in Medicaid long-term care between July, 1, 1990 and December 31, 1991.

MR/DD beneficiaries make up 8,229 person-years in Arizona and 1,723 person-years in New Mexico. Arizona placement data are not correct and therefore not reported in Table 3-1. Twenty-eight percent of the 1,723 MR/DD person-years in New Mexico are for those in HCBS care and 72 percent are for those in nursing homes. Health status variables are not available for any of New Mexico's MR/DD beneficiaries.

Demographic and Eligibility Characteristics

Table 3-2 shows the distribution of EPD beneficiaries by selected demographic and eligibility characteristics, state and placement. Distributions for the MR/DD population in each state are presented in Table 3-3. The characteristics examined are age, gender, ethnicity, eligibility group, receiving cash assistance, and Medicare coverage.

Age is similar for EPD beneficiaries in the two states, with a mean of 77 years. Eighty-four percent of the person-years in Arizona and 83% in New Mexico are for individuals 65 years of age or older (See Table 3-2). Thirty-eight percent of the person-years in both states are for the oldest age group, those 85 years and older. Beneficiaries placed in nursing homes are older than those in HCBS placements. The mean age for nursing home placements is 80 years in Arizona and 79 years in New Mexico as compared to 66 years for HCBS placements in Arizona and 67 years in New Mexico.

The MR/DD population in both states is much younger than the EPD group. As shown in Table 3-3, virtually all of the MR/DD beneficiaries in both states are under age 65 (99 percent in Arizona and 98 percent in New Mexico). The mean age is 21 years in Arizona and 30 years in New Mexico.

Table 3-2

DISTRIBUTION OF EPD BENEFICIARIES BY SELECTED DEMOGRAPHIC AND ELIGIBILITY CHARACTERISTICS, STATE, AND PLACEMENT FOR JANUARY 1991 - SEPTEMBER 1992
(Weighted by Person-Years of Coverage)

	Arizona			New Mexico		
		PLACEMENT			PLACEMENT	
	ALL	HCBS	NH	ALL	HCBS	NH
AGE						
< 65	15.79%	37.78%	10.31%	17.02%	33.56%	12.66%
65-74	14.48%	18.88%	13.38%	13.70%	15.65%	13.18%
75-84	31.49%	24.03%	33.35%	30.90%	27.47%	31.81%
85 plus	38.22%	19.28%	42.94%	38.35%	23.30%	42.32%
GENDER						
Missing				6.91%	11.04%	5.82%
Female	72.23%	64.32%	74.20%	65.48%	61.99%	66.40%
Male	27.76%	35.67%	25.79%	27.60%	26.96%	27.76%
ETHNICITY						
Missing				2.54%	0.90%	2.98%
Other	0.75%	1.51%	0.56%	2.50%	1.52%	2.76%
Black	3.81%	4.99%	3.52%	1.82%	2.08%	1.75%
White	77.85%	67.32%	80.48%	61.84%	47.89%	65.52%
Hispanic	12.36%	18.29%	10.89%	27.57%	43.46%	23.38%
Native American	5.19%	7.86%	4.53%	3.70%	4.12%	3.59%
ELIGIBILITY GROUP						
SSI	99.86%	99.45%	99.97%	99.23%	99.90%	99.06%
AFDC	0.13%	0.54%	0.02%	0.25%	0.05%	0.31%
Other				0.50%	0.03%	0.62%
CASH INDICATOR						
No Cash Assistance	83.19%	65.38%	87.63%	82.46%	84.27%	81.99%
Cash Assistance	16.80%	34.61%	12.36%	17.53%	15.72%	18.00%
MEDICARE COVERAGE						
No Medicare	9.91%	20.50%	7.27%	14.76%	24.58%	12.17%
Medicare	90.08%	79.49%	92.72%	85.23%	75.41%	87.82%

Table 3-3

DISTRIBUTION OF MR/DD BENEFICIARIES BY SELECTED DEMOGRAPHIC AND ELIGIBILITY CHARACTERISTICS, STATE, AND PLACEMENT FOR JANUARY 1991 - SEPTEMBER 1992

(Weighted by Person-Years of Coverage)

	Arizona	New Mexico
AGE		
< 65	98.95%	97.82%
65-74	0.90%	1.86%
75-84	0.09%	0.23%
85 plus	0.05%	0.06%
GENDER		
Missing		3.43%
Female	43.21%	40.31%
Male	56.78%	56.25%
ETHNICITY		
Missing		1.76%
Other	1.20%	7.85%
Black	4.85%	1.33%
White	68.28%	59.43%
Hispanic	17.82%	26.16%
Native American	7.83%	3.43%
ELIGIBILITY GROUP		
SSI	88.85%	99.68%
AFDC	11.14%	0.13%
Other		0.17%
CASH INDICATOR		
No Cash Assistance	33.54%	53.50%
Cash Assistance	66.45%	46.49%
MEDICARE COVERAGE		
No Medicare	77.03%	63.59%
Medicare	22.96%	36.40%

Approximately seven out of ten EPD beneficiaries are female. In both states, males make up a larger percentage of HCBS placements than nursing home placements. On average, there are more male MR/DD beneficiaries than female MR/DD beneficiaries.

The ethnic mix of the New Mexico chronic long-term care population differs from Arizona in that it has a much larger percentage of persons of Hispanic origin. Among ALTCS EPD beneficiaries, 78% of the person-years are for persons coded as white, 12% are for persons coded as Hispanic, and 10% are for persons coded as black, Native American, or other ethnicity. The corresponding numbers for New Mexico are 63%, 28%, and 9%. Whites have a smaller representation among those in HCBS placements, while Hispanics, blacks and Native Americans have a greater representation in those placements.

Virtually all of the long-term care beneficiaries are determined eligible under SSI-related criteria. The one exception is for the ALTCS MR/DD population, for which 11 percent of the person-years are for individuals determined eligible under Aid to Families with Dependent Children (AFDC)-related criteria.

Medicaid beneficiaries who have income levels below the SSI limit, $422 per month for an individual in calendar year 1991 and $434 per month for an individual in 1992, can receive cash payments from SSI. Approximately 17% of EPD person-years in Arizona and 18% in New Mexico are for individuals who receive some form of cash assistance. In Arizona, there is significant variation by placement. Thirty-five percent of the person-years in HCBS placements are for persons who receive cash assistance, while only 12% of nursing home person-years are for such individuals. No substantial difference in the cash assistance indicator is found in New Mexico. Sources in Arizona indicate that they would expect differences in cash assistance status by placement. This is because the Social Security Administration reduces the beneficiary's calculated level of need when an SSI beneficiary is institutionalized. If the applicant has other income amounting to $50 per month and ALTCS pays more than 50% of the cost of care, cash assistance status is eliminated. Thus the difference observed in Arizona is explainable. The lack of a difference in New Mexico is more surprising.

Cash assistance is much more common among MR/DD beneficiaries than EPD beneficiaries. Two-thirds of the MR/DD person-years in Arizona and nearly half (47 percent) in New Mexico are for individuals receiving cash assistance.

Medicare coverage is indicated in the Medicaid eligibility files for 90% of EPD person-years in Arizona and 85% of EPD person-years in New Mexico. In both states, residents in nursing homes are more likely to have Medicare coverage (93% in Arizona and 88% in New Mexico) than those in HCBS placements (79% in Arizona and 75% in New Mexico). Medicare coverage is less prevalent among MR/DD beneficiaries than EPD beneficiaries. Only 23% of Arizona's MR/DD person-years and 36% of New Mexico's person-years are for beneficiaries who have Medicare coverage.

Health Status Indicators

Two health status indicators are reported in the tables below. In Arizona, these measures are from the ALTCS PAS instrument. In New Mexico, they were coded by our subcontractor, Lovelace Medical Foundation, from the hard copy NMAFs for a subset of the study population. Data on activity of daily living (ADL) limitations in New Mexico were not strictly comparable to the data in Arizona. ADLs were defined in slightly different ways and the scaling systems used were not consistent.

In ALTCS, the PAS uses four levels to assess ADL limitations: independent, minimal assistance, moderate assistance, and maximum assistance. In the New Mexico Medicaid program, the NMAF uses three levels: independent, needs help, and requires total assistance. Additionally, the ALTCS definition of "independent" excludes the use of mechanical aids, whereas they are included in the New Mexico Medicaid program. While the levels across the two states are not exactly the same, in order to allow these two scales to be used comparatively we assume that the highest level on each scale is roughly equivalent. New Mexico defines "requires total assistance" as being unable to perform the activity without assistance. Arizona defines "maximum assistance" as being totally dependent on others for performing the activity — the individual is unable or unwilling to assist with the activity. The new variable created, maximum assistance in the ADL, is defined as the highest level of each of these two scales.

Table 3-4 shows the distribution of EPD beneficiaries by number of maximum assistance ADL limitations. The ADLs scored are bathing, eating, mobility, transferring, and toileting. The distributions reveal a population that on average needs maximum assistance in performing at least one ADL. The results are similar across the states. Excluding missing values, 57% of the EPD person-years in Arizona and 54% in New Mexico are for individuals with maximum assistance needs in one or more ADL. The mean score is 1.6 ADLs in Arizona and 1.5 ADLs in New Mexico. Twelve percent of the EPD beneficiaries in both states require maximum assistance with all five ADLs studied.

Individuals in HCBS placements have a greater level of functioning than those in nursing homes. The mean score of 0.9 ADLs for EPD HCBS placements in both states is approximately half that for EPD nursing home placements (1.8 in Arizona and 1.7 in New Mexico).

Diagnosis indicators were created for seven medical conditions: heart disease; malignant neoplasms; diabetes mellitus; cerebrovascular disease; psychoses, neurotic disorders, and personality disorders; degenerative diseases of the central nervous system; and fractures (see Appendix A). The distributions of these variables are shown in Table 3-5. The distributions across the states are similar for all seven conditions. The largest difference is for mental problems, for which 35% of the Arizona beneficiaries had one or more mental diagnoses but only 28% of the New Mexico beneficiaries had at least one such diagnosis indicated.

Of those conditions studied, psychoses, neurotic disorders, and personality disorders (called "mental problem" in Table 3-5) is the most prevalent condition reported in both states (36% of person-years in Arizona and 28% in New Mexico). The second most common is heart disease (32% of

Table 3-4

DISTRIBUTION OF EPD BENEFICIARIES BY ABILITY TO PERFORM ADLS, STATE, AND PLACEMENT FOR JANUARY 1991 - SEPTEMBER 1992

(Weighted by Person-Years of Coverage)

	Arizona			New Mexico*		
		PLACEMENT			PLACEMENT	
	ALL	HCBS	NH	ALL	HCBS	NH
# OF ADLs REQUIRING TOTAL ASSISTANCE						
Missing	3.21%	4.94%	2.78%	3.81%	6.77%	2.59%
0	41.61%	58.59%	37.38%	43.77%	63.14%	35.73%
1	13.38%	12.67%	13.56%	16.97%	9.02%	20.28%
2	12.13%	7.49%	13.29%	10.00%	5.91%	11.70%
3	9.21%	7.44%	9.65%	6.68%	3.22%	8.12%
4	9.14%	5.00%	10.18%	7.60%	2.94%	9.53%
5	11.28%	3.83%	13.13%	11.13%	8.97%	12.03%

* New Mexico restricted to those having health status variables completed.

Table 3-5

DISTRIBUTION OF EPD BENEFICIARIES BY DIAGNOSIS INDICATOR VARIABLES, STATE, AND PLACEMENT FOR JANUARY 1991 - SEPTEMBER 1992
(Weighted by Person-Years of Coverage)

	Arizona			New Mexico*		
		PLACEMENT			PLACEMENT	
	ALL	HCBS	NH	ALL	HCBS	NH
HEART DISEASE						
Missing	3.10%	4.43%	2.77%			
No	65.99%	70.81%	64.79%	73.34%	74.87%	72.70%
Yes	30.89%	24.74%	32.42%	26.65%	25.12%	27.29%
CANCER						
Missing	3.10%	4.43%	2.77%			
No	93.91%	91.20%	94.43%	95.15%	95.42%	95.04%
Yes	2.97%	3.75%	2.78%	4.84%	4.57%	4.95%
DIABETES						
Missing	3.10%	4.43%	2.77%			
No	85.85%	81.83%	86.86%	84.69%	82.70%	85.52%
Yes	11.03%	13.72%	10.36%	15.30%	17.29%	14.47%
STROKE						
Missing	3.10%	4.43%	2.77%			
No	81.03%	81.07%	81.02%	84.90%	91.12%	82.32%
Yes	15.85%	14.48%	16.19%	15.09%	8.87%	17.67%
MENTAL PROBLEM						
Missing	3.10%	4.43%	2.77%			
No	62.19%	82.41%	57.15%	72.13%	88.17%	65.48%
Yes	34.69%	13.14%	40.06%	27.86%	11.82%	34.51%
DEGENERATIVE DISEASE - C. NERVOUS SYSTEM						
Missing	3.10%	4.43%	2.77%			
No	83.43%	88.14%	82.26%	88.20%	93.15%	86.14%
Yes	13.45%	7.41%	14.95%	11.79%	6.84%	13.85%
FRACTURE						
Missing	3.10%	4.43%	2.77%			
No	93.13%	93.24%	93.10%	90.59%	96.15%	88.29%
Yes	3.76%	2.31%	4.12%	9.40%	3.84%	11.70%

* New Mexico restricted to those having health status variables completed.

person-years in Arizona and 27% in New Mexico), followed by stroke (16% in Arizona and 15% in New Mexico). Diabetes is reported for 11% of the person-years in Arizona and 15% in New Mexico, and degenerative diseases of the central nervous system are reported for 14% of the person-years in Arizona and 12% in New Mexico. Fewer than 10% of the person-years in either state are for beneficiaries with diagnoses of cancer (3% in Arizona and 5% in New Mexico) or fractures (4% in Arizona and 9% in New Mexico).

In general, individuals in HCBS placements seem to have a smaller prevalence of medical conditions than those placed in nursing homes. Mental problems are approximately three times more prevalent among nursing home residents than those in HCBS care. A diagnosis of degenerative disease of the central nervous system is twice as prevalent among nursing home placements in New Mexico. Diabetes was the only diagnosis for which the prevalence is lower among nursing home beneficiaries, with a difference of three percentage points found in each state.

Utilization Rates

Rates for the Population

Descriptive utilization statistics for the population are given in Tables 3-6 through 3-9. Data are first presented by beneficiary type (EPD, MR/DD) and by type of service. Within type of service, data are presented by program source (Medicare, Medicaid). Discussion is focused on units, although allowed charges and paid charges are also shown in the tables. It should be noted that unlike traditional Medicaid programs, which cover a full range of mental health services, ALTCS was phasing in mental health coverage during our study period.[27] Thus, to the extent that New Mexico's long-term care beneficiaries use Medicaid mental health services that are not available to beneficiaries in Arizona during the study period, we would expect to see differences between Arizona and New Mexico.

Table 3-6

INSTITUTIONAL UTILIZATION PER PERSON-YEAR FOR EPD BENEFICIARIES BY
TYPE OF SERVICE, PLACEMENT, PROGRAM SOURCE, AND STATE
FOR JANUARY 1991 - SEPTEMBER 1992

	Arizona	New Mexico
	Years	Years
Person-Years		
All Placements	14,506	8,215
HCBS	2,894	1,714
NH	11,612	6,501

	Arizona				New Mexico			
	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
Inpatient								
All Diagnoses								
All Placements								
Total	3.692	0.524	3,764	3,448	4.731	0.582	2,804	2,514
Medicare	2.994	0.431	3,109	2,828	3.659	0.482	2,210	1,978
Medicaid	0.698	0.092	655	621	1.072	0.100	595	536
HCBS								
Total	6.282	0.905	5,940	5,430	6.464	0.870	3,957	3,594
Medicare	4.870	0.702	4,729	4,276	5.113	0.698	3,124	2,817
Medicaid	1.412	0.203	1,211	1,153	1.351	0.172	833	777
NH								
Total	3.046	0.429	3,222	2,955	4.274	0.506	2,500	2,229
Medicare	2.527	0.364	2,705	2,467	3.275	0.425	1,969	1,756
Medicaid	0.519	0.065	516	488	0.998	0.081	532	473
Mental								
All Placements								
Total	0.164	0.013	53	45	0.377	0.021	127	119
Medicare	0.155	0.010	48	40	0.246	0.015	71	64
Medicaid	0.009	0.003	5	5	0.131	0.006	56	56
HCBS								
Total	0.136	0.026	89	77	0.329	0.031	150	140
Medicare	0.111	0.017	73	62	0.243	0.025	115	105
Medicaid	0.026	0.008	16	16	0.086	0.006	35	35
NH								
Total	0.171	0.010	44	37	0.390	0.018	121	114
Medicare	0.166	0.009	42	35	0.247	0.012	60	53
Medicaid	0.005	0.001	2	2	0.143	0.006	61	61
Medical								
All Placements								
Total	2.427	0.401	2,393	2,172	2.946	0.421	1,740	1,536
Medicare	1.971	0.330	2,027	1,818	2.328	0.354	1,382	1,212
Medicaid	0.455	0.071	367	353	0.618	0.068	358	324
HCBS								
Total	4.124	0.703	3,766	3,403	4.401	0.663	2,705	2,439
Medicare	3.232	0.548	3,112	2,769	3.536	0.536	2,133	1,903
Medicaid	0.892	0.155	654	634	0.865	0.128	572	535
NH								
Total	2.004	0.326	2,051	1,865	2.562	0.358	1,485	1,297
Medicare	1.657	0.276	1,756	1,581	2.009	0.306	1,184	1,029
Medicaid	0.347	0.050	295	283	0.553	0.052	301	268
Surgical								
All Placements								
Total	1.101	0.110	1,317	1,232	1.408	0.139	938	859
Medicare	0.868	0.091	1,034	969	1.085	0.113	757	702
Medicaid	0.233	0.019	283	263	0.323	0.026	181	157
HCBS								
Total	2.022	0.177	2,085	1,950	1.734	0.176	1,102	1,016
Medicare	1.527	0.136	1,543	1,446	1.333	0.138	877	809
Medicaid	0.495	0.040	542	504	0.401	0.038	226	206
NH								
Total	0.872	0.093	1,126	1,053	1.322	0.130	894	818
Medicare	0.704	0.079	907	850	1.019	0.107	725	674
Medicaid	0.168	0.014	219	202	0.302	0.023	169	144

Table 3-6 (Continued)

INSTITUTIONAL UTILIZATION PER PERSON-YEAR FOR EPO BENEFICIARIES BY TYPE OF SERVICE, PLACEMENT, PROGRAM SOURCE, AND STATE FOR JANUARY 1991 - SEPTEMBER 1992

	Arizona			New Mexico		
	Claims	Allowed	Paid	Claims	Allowed	Paid
Outpatient						
All Diagnoses						
All Placements						
Total	8.883	1,311	1,177	3.922	726	600
Medicare	7.146	1,054	924	3.508	656	534
Medicaid	1.737	257	253	0.413	71	67
HCBS						
Total	10.454	2,037	1,842	4.076	736	612
Medicare	7.375	1,466	1,279	3.095	556	448
Medicaid	3.078	570	563	0.980	179	164
NH						
Total	8.491	1,130	1,011	3.881	724	597
Medicare	7.088	951	836	3.617	682	556
Medicaid	1.403	179	175	0.264	42	41
Mental						
All Placements						
Total	0.398	36	33	0.211	28	24
Medicare	0.352	32	29	0.190	25	22
Medicaid	0.047	4	4	0.021	2	2
HCBS						
Total	0.219	42	36	0.113	11	9
Medicare	0.166	35	29	0.075	8	6
Medicaid	0.053	8	7	0.038	3	3
NH						
Total	0.443	35	32	0.237	32	29
Medicare	0.398	31	29	0.220	30	26
Medicaid	0.045	3	3	0.017	2	2
Medical						
All Placements						
Total	8.406	1,202	1,081	3.617	661	547
Medicare	6.730	960	843	3.248	598	487
Medicaid	1.677	242	238	0.369	63	60
HCBS						
Total	10.090	1,863	1,692	3.803	658	550
Medicare	7.096	1,320	1,156	2.902	491	398
Medicaid	2.994	543	536	0.902	167	151
NH						
Total	7.987	1,037	928	3.568	662	546
Medicare	6.639	870	765	3.339	626	511
Medicaid	1.348	167	164	0.229	36	36
Surgical						
Total						
Total	0.078	73	63	0.094	37	29
Medicare	0.064	62	53	0.071	33	24
Medicaid	0.014	11	11	0.023	5	5
HCBS						
Total	0.144	131	113	0.159	67	53
Medicare	0.113	112	94	0.118	57	43
Medicaid	0.031	20	20	0.041	10	10
NH						
Total	0.062	58	51	0.077	29	23
Medicare	0.052	50	42	0.058	26	19
Medicaid	0.010	9	8	0.018	3	3

Table 3-6 (Concluded)

INSTITUTIONAL UTILIZATION PER PERSON-YEAR FOR EPD BENEFICIARIES BY TYPE OF SERVICE, PLACEMENT, PROGRAM SOURCE, AND STATE FOR JANUARY 1991 - SEPTEMBER 1992

	Arizona				New Mexico			
	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
Nursing Home								
All Placements								
Total	266.1	2.053	18,613	18,265	269.7	0.576	19,354	16,622
Medicare	5.0	0.165	791	534	1.2	0.049	215	169
Medicaid	261.0	1.888	17,822	17,731	268.5	0.527	19,140	16,453
HCBS								
Total	1.7	0.115	117	149	0.4	0.028	82	77
Medicare	0.3	0.028	57	53	0.4	0.028	82	77
Medicaid	1.4	0.087	59	96	0.0	0.000	0	0
NH								
Total	332.0	2.536	23,222	22,780	340.7	0.720	24,435	20,984
Medicare	6.2	0.200	974	654	1.4	0.055	250	193
Medicaid	325.8	2.336	22,248	22,126	339.3	0.665	24,185	20,791
Home Health	Claims			Paid	Claims			Paid
All Placements								
Total	0.170			140	0.386			179
Medicare	0.169			140	0.300			136
Medicaid	0.001			0	0.086			43
HCBS								
Total	0.825			682	1.536			682
Medicare	0.821			681	1.301			574
Medicaid	0.004			1	0.235			108
NH								
Total	0.007			5	0.083			46
Medicare	0.007			5	0.036			20
Medicaid	0.000			0	0.047			26

Table 3-7

NON-INSTITUTIONAL UTILIZATION PER PERSON-YEAR FOR EPD BENEFICIARIES BY TYPE OF SERVICE, PLACEMENT, PROGRAM SOURCE, AND STATE FOR JANUARY 1991 - SEPTEMBER 1992

	Arizona	New Mexico
Person Years	Years	Years
All Placements	14,506	8,215
HCBS	2,894	1,714
NH	11,612	6,501

	Arizona			New Mexico		
	Units	Allowed	Paid	Units	Allowed	Paid
Evaluation & Management						
All Evaluation and Management						
All Placements						
Total	16.421	743	551	14.870	494	354
Medicare	12.438	586	422	13.143	448	307
Medicaid	3.982	157	130	1.727	46	47
HCBS						
Total	21.351	889	702	17.789	611	461
Medicare	14.665	681	506	14.698	529	378
Medicaid	6.686	208	196	3.090	83	83
NH						
Total	15.192	707	514	14.100	463	325
Medicare	11.883	563	401	12.733	427	288
Medicaid	3.309	144	113	1.367	36	38
Office						
All Placements						
Total	2.938	86	63	2.626	76	50
Medicare	1.841	58	40	2.249	68	42
Medicaid	1.097	28	24	0.376	8	8
HCBS						
Total	10.901	312	240	7.091	197	133
Medicare	6.310	208	142	5.893	171	108
Medicaid	4.591	104	98	1.197	25	25
NH						
Total	0.953	29	19	1.449	44	28
Medicare	0.727	21	14	1.289	41	24
Medicaid	0.226	8	5	0.160	4	4
Hospital						
All Placements						
Total	3.230	156	127	4.889	174	139
Medicare	2.648	130	103	4.317	159	123
Medicaid	0.582	26	24	0.572	15	16
HCBS						
Total	5.999	296	242	7.267	257	207
Medicare	4.974	248	196	6.121	226	176
Medicaid	1.025	48	47	1.146	31	31
NH						
Total	2.541	122	98	4.262	152	121
Medicare	2.069	101	79	3.842	141	109
Medicaid	0.472	21	18	0.420	11	11
Emergency Room						
All Placements						
Total	0.924	65	51	0.625	26	20
Medicare	0.834	59	45	0.543	24	18
Medicaid	0.090	6	5	0.082	2	2
HCBS						
Total	1.602	114	89	0.963	39	31
Medicare	1.380	100	76	0.766	33	25
Medicaid	0.222	14	13	0.197	6	6
NH						
Total	0.754	52	41	0.535	23	17
Medicare	0.698	49	38	0.484	21	16
Medicaid	0.057	4	3	0.052	1	1

Table 3-7 (Continued)

NON-INSTITUTIONAL UTILIZATION PER PERSON-YEAR FOR EPD BENEFICIARIES BY
TYPE OF SERVICE, PLACEMENT, PROGRAM SOURCE, AND STATE
FOR JANUARY 1991 - SEPTEMBER 1992

	Arizona			New Mexico		
	Units	Allowed	Paid	Units	Allowed	Paid
Evaluation and Management (Continued)						
Nursing Home and Home						
All Placements						
Total	7.939	353	247	5.346	145	89
Medicare	6.041	272	185	4.965	137	81
Medicaid	1.898	81	62	0.381	8	8
HCBS						
Total	0.500	25	20	0.217	8	5
Medicare	0.326	17	12	0.200	7	
Medicaid	0.175	9	8	0.018	1	1
NH						
Total	9.793	434	304	6.698	181	112
Medicare	7.465	335	228	6.221	172	101
Medicaid	2.327	99	76	0.477	10	10
Consultations						
All Placements						
Total	0.586	46	36	0.417	31	24
Medicare	0.493	39	29	0.350	28	21
Medicaid	0.093	8	7	0.067	3	3
HCBS						
Total	1.029	85	67	0.654	48	38
Medicare	0.817	67	52	0.492	41	31
Medicaid	0.212	18	16	0.162	7	7
NH						
Total	0.476	37	29	0.355	26	20
Medicare	0.413	32	24	0.313	24	18
Medicaid	0.063	5	5	0.042	2	2
Specialty Evaluation & Management						
All Placements						
Total	0.804	37	27	0.967	41	31
Medicare	0.581	29	20	0.718	32	22
Medicaid	0.223	9	8	0.249	9	10
HCBS						
Total	1.319	56	43	1.597	63	46
Medicare	0.858	40	28	1.227	50	32
Medicaid	0.462	16	15	0.370	13	13
NH						
Total	0.675	33	24	0.801	36	27
Medicare	0.512	26	18	0.584	28	19
Medicaid	0.163	7	6	0.217	8	9
Procedures						
All Placements						
Total	5.530	392	326	3.802	316	249
Medicare	5.124	277	217	3.365	286	220
Medicaid	0.406	115	109	0.437	29	29
HCBS						
Total	13.190	694	580	3.514	426	346
Medicare	12.030	482	382	2.904	364	285
Medicaid	1.160	212	198	0.610	62	61
NH						
Total	3.621	316	263	3.878	287	224
Medicare	3.403	225	176	3.486	266	203
Medicaid	0.218	91	87	0.392	21	21

Table 3-7 (Continued)

NON-INSTITUTIONAL UTILIZATION PER PERSON-YEAR FOR EPD BENEFICIARIES BY TYPE OF SERVICE, PLACEMENT, PROGRAM SOURCE, AND STATE FOR JANUARY 1991 - SEPTEMBER 1992

	Arizona			New Mexico		
	Units	Allowed	Paid	Units	Allowed	Paid
Therapies						
All Placements						
Total	1.161	64	77	0.120	2	2
Medicare	0.051	1	1	0.093	2	1
Medicaid	1.110	63	76	0.027	0	0
HCBS						
Total	0.673	18	17	0.475	8	6
Medicare	0.179	3	3	0.390	6	5
Medicaid	0.494	15	15	0.085	1	1
NH						
Total	1.282	76	92	0.026	0	0
Medicare	0.019	1	0	0.015	0	0
Medicaid	1.263	75	92	0.011	0	0
Tests						
All Placements						
Total	6.067	78	73	15.289	136	131
Medicare	4.954	62	59	14.083	122	117
Medicaid	1.113	16	15	1.206	14	14
HCBS						
Total	12.079	146	139	11.259	121	113
Medicare	9.589	118	112	9.870	103	95
Medicaid	2.490	28	27	1.389	18	18
NH						
Total	4.568	61	57	16.352	140	136
Medicare	3.799	48	45	15.194	127	123
Medicaid	0.769	13	12	1.158	13	13
Imaging						
All Placements						
Total	4.109	108	79	3.372	96	76
Medicare	3.606	83	59	3.005	84	63
Medicaid	0.502	26	20	0.367	12	12
HCBS						
Total	5.775	182	140	4.373	157	130
Medicare	4.917	124	96	3.621	126	100
Medicaid	0.859	58	44	0.752	30	30
NH						
Total	3.694	90	64	3.108	80	61
Medicare	3.280	72	50	2.843	72	53
Medicaid	0.414	18	14	0.265	7	8
HCBS						
All Placements						
Total	7.933	990	883	5.605	1,965	1,965
Medicare						
Medicaid	7.933	990	883	5.605	1,965	1,965
HCBS						
Total	39.464	4,928	4,396	26.860	9,420	9,420
Medicare						
Medicaid	39.464	4,928	4,396	26.860	9,420	9,420
NH						
Total	0.076	8	7	0.001	0	0
Medicare						
Medicaid	0.076	8	7	0.001	0	0

Table 3-7 (Concluded)

NON-INSTITUTIONAL UTILIZATION PER PERSON-YEAR FOR EPD BENEFICIARIES BY TYPE OF SERVICE, PLACEMENT, PROGRAM SOURCE, AND STATE FOR JANUARY 1991 - SEPTEMBER 1992

	Arizona			New Mexico		
	Units	Allowed	Paid	Units	Allowed	Paid
Other (including Anesthesia)						
All Placements						
Total	186.703	1,079	897	162.094	751	652
Medicare	115.251	742	563	66.564	450	343
Medicaid	71.452	337	334	95.530	301	309
HCBS						
Total	294.904	1,893	1,676	251.979	1,307	1,168
Medicare	37.439	946	733	27.716	649	503
Medicaid	257.465	947	943	224.263	658	665
NH						
Total	159.738	877	703	138.398	604	515
Medicare	134.642	691	521	76.805	397	301
Medicaid	25.096	185	182	61.592	207	215
Drugs						
All Placements						
Total	29.189		508	25.753		542
Medicare						
Medicaid	29.189		508	25.753		542
HCBS						
Total	29.982		568	24.545		679
Medicare						
Medicaid	29.982		568	24.545		679
NH						
Total	28.992		493	26.071		506
Medicare						
Medicaid	28.992		493	26.071		506

Table 3-8

UTILIZATION PER PERSON-YEAR FOR MR/DD BENEFICIARIES BY TYPE OF SERVICE, PROGRAM SOURCE, AND STATE FOR JANUARY 1991 - SEPTEMBER 1992

	Arizona				New Mexico			
	Years				Years			
Person Years	8,229				1,722			
Inpatient	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
All Diagnoses								
Total	1.351	0.178	1,118	1,080	1.638	0.220	952	892
Medicare	0.304	0.042	250	220	0.401	0.070	275	238
Medicaid	1.047	0.135	867	860	1.237	0.150	677	654
Mental								
Total	0.350	0.016	141	135	0.401	0.028	148	138
Medicare	0.054	0.007	31	25	0.113	0.008	44	40
Medicaid	0.296	0.010	111	110	0.288	0.020	103	98
Medical								
Total	0.661	0.128	575	556	0.804	0.135	513	480
Medicare	0.142	0.025	121	105	0.190	0.045	148	125
Medicaid	0.519	0.103	453	451	0.614	0.091	366	356
Surgical								
Total	0.339	0.034	402	389	0.434	0.057	291	274
Medicare	0.107	0.011	98	89	0.098	0.017	83	73
Medicaid	0.232	0.023	303	300	0.336	0.039	208	201
Outpatient	Claims		Allowed	Paid	Claims		Allowed	Paid
All Diagnoses								
Total	0.760		189	181	2.294		222	201
Medicare	0.298		59	50	0.810		65	50
Medicaid	0.462		130	130	1.483		157	151
Mental								
Total	0.031		5	4	0.170		23	21
Medicare	0.017		3	2	0.042		9	7
Medicaid	0.014		2	2	0.128		14	14
Non-Mental								
Total	0.680		146	139	1.995		175	160
Medicare	0.260		42	35	0.733		42	32
Medicaid	0.420		104	104	1.262		133	127
Surgical								
Total	0.049		39	37	0.128		24	20
Medicare	0.021		15	13	0.035		14	11
Medicaid	0.028		24	24	0.093		10	10
Nursing Home	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
Total	15.5	0.007	253	249	259.4	0.315	37,504	36,284
Medicare	0.2	0.004	17	13	0.0	0.000	0	0
Medicaid	15.3	0.002	236	236	259.4	0.315	37,504	36,284
Home Health	Claims			Paid	Claims			Paid
Total	0.022			16	0.048			22
Medicare	0.022			16	0.009			5
Medicaid	0.000			0	0.038			17
Drugs	Claims			Paid	Claims			Paid
Total	10.425			190	10.705			224
Medicare	.			.	.			.
Medicaid	10.425			190	10.705			224

Table 3-9

UTILIZATION PER PERSON-YEAR FOR SELECTED EPD SUBPOPULATIONS BY TYPE OF SERVICE, STATE, AND ELIGIBILITY FOR JANUARY 1991 - SEPTEMBER 1992

		Arizona				New Mexico			
		Dually Eligible NH	Dually Eligible HCBS	Medicaid Only NH	Medicaid Only HCBS	Dually Eligible NH	Dually Eligible HCBS	Medicaid Only NH	Medicaid Only HCBS
PERSON-YEARS		10,766.59	2,300.44	845.18	593.34	5,709.33	1,292.42	791.39	421.36
INSTITUTIONAL									
Inpatient									
	Days	2.92	6.58	4.60	5.14	4.11	7.10	5.42	4.51
	Admissions	0.42	0.96	0.52	0.69	0.53	0.98	0.36	0.54
	Allowed	3,102	6,355	4,746	4,331	2,420	4,305	3,080	2,889
	Paid	2,840	5,743	4,412	4,215	2,115	3,840	3,050	2,841
Outpatient									
	Claims	8.54	10.65	7.90	9.68	4.15	4.26	1.90	3.52
	Allowed	1,141	2,073	999	1,894	781	763	314	651
	Paid	1,014	1,833	970	1,875	637	617	312	596
Nursing Home									
	Days	333.01	1.88	319.19	0.98	347.95	0.52	288.28	0.00
	Admissions	2.56	0.13	2.28	0.06	0.63	0.04	1.39	0.00
	Allowed	23,236	136	23,044	42	24,637	108	22,980	0
	Paid	22,771	168	22,894	76	20,820	102	22,163	0
Home Health									
	Visits	0.01	1.03	0.00	0.02	0.06	1.83	0.26	0.62
	Paid	6	856	0	7	31	811	158	286
NON-INSTITUTIONAL									
Evaluation & Management									
TOTAL									
	Units	15.24	22.53	14.57	16.78	14.66	19.88	10.08	11.39
	Allowed	709	948	682	661	490	712	267	303
	Paid	507	717	609	643	332	513	278	303
Office Visits									
	Units	0.95	11.36	0.96	9.11	1.48	7.95	1.19	4.44
	Allowed	29	319	37	284	47	231	27	94
	Paid	18	231	32	275	28	147	29	92
Hospital Visits									
	Units	2.51	6.60	2.94	3.68	4.40	8.23	3.25	4.32
	Allowed	120	327	149	177	161	303	86	116

Table 3-9 (Continued)

UTILIZATION PER PERSON-YEAR FOR SELECTED EPO SUBPOPULATIONS BY TYPE OF SERVICE, STATE, AND ELIGIBILITY FOR JANUARY 1991 - SEPTEMBER 1992

		Arizona				New Mexico			
		Dually Eligible NH	Dually Eligible HCBS	Medicaid Only NH	Medicaid Only HCBS	Dually Only NH	Dually Only HCBS	Medicaid Only NH	Medicaid Only HCBS
	Paid	94	260	143	176	125	237	89	116
ER Visits									
	Units	0.77	1.81	0.58	0.81	0.55	1.04	0.40	0.74
	Allowed	53	131	40	51	24	45	11	22
	Paid	41	99	39	50	18	34	11	22
NH & Home Visits									
	Units	9.93	0.51	8.09	0.47	7.16	0.27	3.36	0.06
	Allowed	441	26	352	22	197	10	69	2
	Paid	304	20	305	18	117	7	72	2
Consultations									
	Units	0.47	1.10	0.52	0.74	0.36	0.67	0.33	0.61
	Allowed	36	90	46	63	28	55	15	26
	Paid	27	69	44	62	21	42	15	26
Specialty Specific									
	Units	0.61	1.15	1.48	1.96	0.70	1.72	1.55	1.21
	Allowed	31	54	59	64	33	69	59	44
	Paid	22	38	46	62	23	46	62	45
Procedures									
	Units	3.80	15.89	1.38	2.73	4.07	3.97	2.50	2.12
	Allowed	316	730	321	555	305	491	153	228
	Paid	259	590	318	541	233	384	153	228
Therapies									
	Units	0.99	0.41	4.99	1.70	0.02	0.52	0.09	0.35
	Allowed	59	10	290	50	0	8	2	5
	Paid	72	10	346	47	0	6	2	5
Tests									
	Units	4.26	13.41	8.56	6.90	17.45	13.47	8.42	4.48
	Allowed	55	162	135	86	147	142	93	56
	Paid	51	153	127	81	141	131	96	56
Imaging									
	Units	3.73	6.49	3.25	2.99	3.27	4.88	1.97	2.82
	Allowed	86	183	135	178	83	171	57	114
	Paid	60	142	112	133	61	130	59	113

Table 3-9 (Concluded)

UTILIZATION PER PERSON-YEAR FOR SELECTED EPO SUBPOPULATIONS BY TYPE OF SERVICE, STATE, AND ELIGIBILITY FOR JANUARY 1991 - SEPTEMBER 1992

		Arizona				New Mexico			
		Dually Eligible NH	Dually Eligible HCBS	Medicaid Only NH	Medicaid Only HCBS	Dually Only NH	Dually Only HCBS	Medicaid Only NH	Medicaid Only HCBS
Other									
	Units	168.11	292.17	53.11	305.50	137.51	174.62	144.80	489.25
	Allowed	885	1,938	766	1,717	622	1,148	479	1,795
	Paid	700	1,663	748	1,728	518	961	493	1,804
HCBS									
	Units	0.07	39.99	0.14	37.41	0.00	26.93	0.00	26.66
	Allowed	7	4,895	18	5,058	0	9,483	0	9,229
	Paid	6	4,378	17	4,467	0	9,483	0	9,229
Drugs									
	Units	28.54	31.22	34.77	25.16	26.99	26.68	19.45	18.00
	Paid	469	573	807	547	513	668	454	714

EPD Beneficiaries

Institutional Services

Below we discuss utilization of institutional services: inpatient hospital care, outpatient hospital care, nursing home care and home health care. These services are normally processed on UB-92 claim forms, with reimbursement going to institutional submitters. In Arizona, Medicaid reimbursement rates are developed assuming that Medicare will be the first payer of all Medicare-covered services. Encounters for Medicare-covered services delivered to dual eligibles must first be submitted to Medicare and a Medicare Explanation of Medical Benefits must be obtained before they can be submitted to AHCCCS.

Inpatient Hospital

As can be seen in Table 3-6, inpatient hospital admissions are 11% greater and days are 28% greater in New Mexico than in Arizona. However, the allowed and paid amounts are 26% and 27% smaller in New Mexico than in Arizona. Eighty-one percent of the inpatient utilization in Arizona and 77% of the inpatient utilization in New Mexico is found in the Medicare data in both states. Rates of use for HCBS beneficiaries are larger than those for nursing home beneficiaries.

When data are examined by type of hospitalization (mental, medical, surgical), most of the use is for medical hospitalizations, 66% in Arizona and 62% in New Mexico. Mental hospitalizations are a larger percentage of the hospitalizations in New Mexico than in Arizona (8% versus 4%). The percentage of surgical hospitalizations is the same in both states, 30%.

Outpatient Hospital

The number of outpatient hospital claims per person-year in Arizona is more than double that in New Mexico (see Table 3-6). This is true with respect to both Medicare and Medicaid claims. HCBS beneficiaries in both states have more claims than nursing home beneficiaries (10.5 versus 8.5 in Arizona and 4.1 versus 3.9 in New Mexico). Most of the use is reported through Medicare, 80% in Arizona and 89% in New Mexico. HCBS and nursing home beneficiaries in New Mexico have a larger proportion of their use from Medicare as compared to Arizona beneficiaries. In Arizona, the rates are 71% for HCBS beneficiaries and 84% for nursing home beneficiaries, whereas in New Mexico the rates are 76% for HCBS beneficiaries and 93% for nursing home beneficiaries.

Emergency room use, as measured by the number of emergency room lines on outpatient hospital claims, represents approximately one-tenth of all outpatient hospital lines reported (not shown). Emergency room use per person-year is greater in Arizona than in New Mexico, 0.83 units versus 0.43 units. In both states, HCBS beneficiaries have more emergency room units per person-year than nursing home beneficiaries (1.41 versus 0.68 in Arizona and 0.64 versus 0.37 in New Mexico). The majority of the emergency room use is through Medicare (72 percent in Arizona and 86 percent in New Mexico) although the proportions are smaller than those for total outpatient hospital claims.

When the data are examined by reason for outpatient visit (mental, medical, surgical), the majority of the claims are for medical visits, 95% in Arizona and 92% in New Mexico. There is very little surgical outpatient hospital use (1% in Arizona and 2% in New Mexico) and only a small number of mental claims (4% in Arizona and 5% in New Mexico).

Nursing Home

Table 3-6 also shows nursing home utilization by placement and data source. Information is also available, although not presented in the table, on type of bed. Type of bed is defined as high intensity (Skilled Nursing Facility, etc.), low intensity (Intermediate Care Facility, etc.) and Intermediate Care Facility for the Mentally Retarded. Overall, the two states have almost the same number of nursing home bed days per person-year (266 in

Arizona and 270 in New Mexico); however, the distribution of the days by type of bed is very different in the two states. For Medicaid days in Arizona, most of the utilization (64 percent) is in "high" resource use beds, while in New Mexico almost all of the Medicaid days are in "low" resource beds. As expected, HCBS beneficiaries have much smaller use of nursing homes than nursing home beneficiaries. HCBS beneficiaries average only 1.7 days per person-year in Arizona and 0.4 days in New Mexico as compared to 332 days per person-year for nursing home beneficiaries in Arizona and 341 days in New Mexico.

Medicare is a smaller payer for nursing home use among the chronic long-term care beneficiaries in New Mexico than in Arizona, although use is very small in both states: five of 266 days in Arizona and one of 270 days in New Mexico. Medicare coverage for skilled nursing facility services is limited to post-acute services. To be eligible, beneficiaries must have had a hospital stay and require subsequent skilled nursing or rehabilitation services.

Home Health

Small rates of use of institutional home health services are found in the data. Almost all the use in both states is confined to Medicare use by HCBS beneficiaries. Rates of use per person-year in Arizona and New Mexico are 0.83 and 1.54, respectively. Almost all of the HCBS rate, 99%, is covered by Medicare in Arizona. In New Mexico, 84% is covered by Medicare. For Arizona nursing home beneficiaries, rates per person-year are extremely low, 0.01. In New Mexico, the rate is also low, 0.08, with about half of the claims reported through Medicare and half through Medicaid.

Non-Institutional Services

Non-institutional services are those normally billed on a HCFA 1500 claim form. They include professional and other services. The main categorization developed is based on the Urban Institute Classification

System. This system was designed to attempt to categorize the Current Procedure Terminology codes into categories which are clinically and statistically meaningful.[28]

Main categories presented in Table 3-7 and discussed below are evaluation and management services, procedures, therapies, tests, imaging, HCB services, and other services. Information is also presented on drug use.

Evaluation and Management Services

Evaluation and management services include most medical physician visits, i.e., office visits, hospital visits, emergency room services, nursing home and home visits, consultations and specialty-specific services. Overall utilization is 16.4 visits per person-year in Arizona and 14.9 per person-year in New Mexico. HCBS beneficiaries in Arizona use more evaluation and management services than nursing home beneficiaries (21.4 versus 15.2). Most of the evaluation and management services are delivered through the Medicare program, especially in New Mexico. Seventy-six percent of the use in Arizona and 88% of the use in New Mexico is through Medicare. For HCBS beneficiaries, 69% of the use in Arizona and 83% of the use in New Mexico is through Medicare. Seventy-eight percent of the use for nursing home beneficiaries in Arizona and 90% of the use for nursing home beneficiaries in New Mexico is through the Medicare program.

Also shown in Table 3-7 is a breakdown of evaluation and management services into six subcategories. The majority of evaluation and management services in both states are for nursing home and home visits (7.9 per person-year in Arizona and 5.4 per person-year in New Mexico), followed by hospital visits (3.2 per person-year in Arizona and 4.9 per person-year in New Mexico). Office visit use per person-year is 2.9 in Arizona and 2.6 in New Mexico. The remaining three subcategories — emergency room services, consultations, and specialty-specific services — each average less than one visit per person-year in both states.

Approximately 80 percent of the evaluation and management services used by HCBS beneficiaries in both states are for office visits or hospital visits. ALTCS HCBS beneficiaries tend to have more office visits per person-year than New Mexico HCBS beneficiaries (10.9 versus 7.1), but New Mexico beneficiaries have more hospital visits (7.3 versus 6.0). The most commonly used evaluation and management service for those placed in nursing homes is nursing home or home visits (9.8 per person-year in Arizona and 6.7 per person-year in New Mexico).

Procedures

Included in the procedures category are major procedures such as cardiovascular and orthopedic procedures; ambulatory procedures such as cataract removal and hernia repairs; minor procedures such as immunizations; endoscopy procedures; oncology procedures; and dialysis services. The number of procedures performed per person-year is larger in Arizona than in New Mexico, 5.5 as compared to 3.8. HCBS beneficiaries in Arizona have 13.2 procedures and nursing home beneficiaries have 3.6 procedures per person-year. This difference is not seen in New Mexico, where the rate of procedures per person-year for HCBS beneficiaries, 3.5, is actually slightly lower than for those in nursing homes (3.9 procedures per person-year). Medicare covers most of the procedures in both states, 93% in Arizona and 88% in New Mexico. Those in nursing homes in both states have a greater percentage of their services covered by Medicare than those in HCBS care, 94% as compared to 91% in Arizona and 90% as compared to 83% in New Mexico.

Therapies

Therapies encompass rehabilitative services such as physical therapy, occupational therapy, speech therapy, etc. The unit reported for therapy is the individual line item. Therapy services are used more frequently in Arizona than in New Mexico, especially for the nursing home group. Arizona's nursing home population uses 1.3 units of therapy per person-year. In New Mexico, only 0.03 units per person-year are reported for the nursing home population. Rates of use of therapies are similar in Arizona and New Mexico among HCBS beneficiaries: 0.7 in Arizona and 0.5 in New Mexico. However, among these HCBS beneficiaries, the percentage paid through Medicare differs by state. In Arizona, only 27% is paid through Medicare, while in New Mexico, 82% is paid through Medicare. Ninety-eight percent of all of the therapy use in the nursing home population in Arizona is through the Medicaid program.

Tests

Tests include both laboratory tests and non-laboratory tests such as electrocardiograms, cardiovascular stress tests, electrocardiogram monitoring, etc. New Mexico has a much larger rate of test use per person-year than does Arizona, 15.3 compared to 6.1. Rates of use per person-year are similar for HCBS beneficiaries in both states (12.1 in Arizona and 11.3 in New Mexico) but are considerably larger for nursing home residents in New Mexico (16.4 per person-year in New Mexico and 4.6 in Arizona). Most of the test use in both states is through Medicare (82 percent in Arizona and 92 percent in New Mexico).

Imaging

Imaging services encompass standard imaging (including nuclear medicine), advanced imaging (including computerized axial tomography and magnetic resonance imaging), sonographic imaging, and imaging with a procedure (e.g., right and left heart catherizations, angiography, etc.). Rates of imaging per person-year are slightly larger in Arizona than in New Mexico (4.1 versus 3.4), with about the same percentage of use covered through the Medicare program, 88 percent in Arizona and 89 percent in New Mexico. Rates are slightly larger in both states for HCBS beneficiaries than for those in nursing homes (5.8 units versus 3.7 units in Arizona and 4.4 units versus 3.1 units in New Mexico.)

Other Services

Other services covers a broad range of non-institutional services. Four major types are transportation, anesthesia, oxygen and oxygen supplies, and supplies and equipment including durable medical equipment. Because this field combines a mix of different types of services using different unit measures, we took as our unit field the number of line items. However, for these services in particular we should examine both the units and the charge fields. Arizona shows slightly larger rates of use per person-year, 187 units in Arizona as compared to 162 in New Mexico and $897 in paid charges as compared with $652 in paid charges in New Mexico.

For HCBS beneficiaries in both states, the Medicaid program is the major source of other services. For nursing home beneficiaries, the situation is reversed with Medicare covering a larger share of other services.

HCB Services

HCB services covered in the two states include home health nursing, home health aides, homemaker services, personal care, respite care, and adult day health services, as well as home-delivered meals and attendant care in Arizona and case management in New Mexico. Note that ALTCS beneficiaries receive case management services, however these services are not reported in the AHCCCS encounter data. Two other types of HCB services, therapies and transportation, were reported above. The units reported for HCB services are the individual line items. The New Mexico Medicaid program, according to these data, provides 114% more HCB services to its HCBS beneficiaries than does ALTCS when use is measured in allowed charges. However, Arizona has 47 percent more use when use is measured in units. As defined here, HCB services are not covered by the Medicare program.

Drugs

In reporting drug use, we counted numbers of prescriptions. Note that prescription drugs are not covered by the Medicare program and thus do not appear in the Medicare program data. Drug use appears to be similar in the two states, about 29 prescriptions per person-year in Arizona and 26 prescriptions per person-year in New Mexico. Rates do not differ much by whether the beneficiary is in an HCBS placement or in a nursing home placement. Rates are a little larger for those in an HCBS placement versus nursing home placement in Arizona (30 prescriptions versus 29 per person-year), but a little smaller in New Mexico for those in an HCBS placement (25 prescriptions versus 26 per person-year).

MR/DD Beneficiaries

Table 3-8 summarizes institutional utilization by major service category for the Arizona and New Mexico MR/DD population. Note that because of the data problems discussed above, the data cannot be examined by whether the beneficiary was placed in HCBS care or a nursing home. In addition, only institutional service use and drug use are examined because non-institutional service data for Arizona are not considered reliable.

Inpatient Hospital

MR/DD beneficiaries in Arizona and New Mexico have approximately the same rate of inpatient hospitalizations per person-year (1.4 days in Arizona and 1.6 days in New Mexico). Medicare pays for about the same percentage in each state, 22% in Arizona and 24% in New Mexico. Examining the data by type of hospitalization (mental, medical, surgical), 26% of the use in Arizona and 24% of the use in New Mexico are for mental diagnoses. Nearly half of the hospital use is for medical conditions in both states. One-fourth of the hospital days in Arizona and 26% of the hospital days in New Mexico are associated with surgical diagnoses.

Outpatient Hospital

Rates of outpatient hospital use per person-year appear to be larger in New Mexico than in Arizona, both among services covered by Medicare (0.8 versus 0.3) and those covered by Medicaid (1.5 versus 0.5). These claims are only rarely for mental diagnoses in both states, 4% in Arizona and 7% in New Mexico. More than one-half of outpatient lines reported in Arizona are for emergency room services (0.4 out of 0.7 lines). In New Mexico about 20% of all outpatient lines are for emergency room services (0.2 out of 1.1 lines).

Nursing Home

There are tremendous differences observed in the use of nursing home services among the MR/DD populations of the two states. New Mexico's population is very heavily institutionalized, averaging 259 days per person-year. All of these days were in intermediate care facilities for the mentally retarded. The Arizona number of nursing home days per MR/DD person-year is less than 16. Almost 75 percent of institutionalized MR/DD ALTCS beneficiaries are in intermediate care facilities for the mentally retarded. None of the New Mexico data are supported through Medicare but 0.22 of the Arizona days are Medicare days.

Drugs

Drug utilization rates per person-year seem to be similar in the two states: 10.4 prescriptions in Arizona and 10.7 in New Mexico. Prescription drugs are not covered by Medicare and thus all of the use is reported by the Medicaid program.

Rates for Selected Population Groups

Next we discuss utilization of services for selected population groups. While the discussion above pertains to total program use, this part of the chapter examines utilization rates for the following major categories of beneficiaries:

- Dually-Eligible EPD Beneficiaries in HCBS Care
- Dually-Eligible EPD Beneficiaries in Nursing Home Care
- Medicaid-Only EPD Beneficiaries in HCBS Care
- Medicaid-Only EPD Beneficiaries in Nursing Home Care
- Dually-Eligible MR/DD Beneficiaries
- Medicaid-Only MR/DD Beneficiaries

EPD Population Groups

Table 3-9 presents the number of person-years and rates of use for four subgroups of the EPD population. Among long-term care beneficiaries, those who are dually eligible for Medicare and Medicaid and are in nursing homes make up the largest group, representing 10,767 person-years in Arizona and 5,709 person-years in New Mexico. Those who are dually eligible and receive HCBS care are the second most common group, representing 2,300 person-years in Arizona and 1,292 in New Mexico. Nursing home beneficiaries who are eligible only for Medicaid coverage make up the next largest group, 845 person-years in Arizona and 791 in New Mexico. With 593 person-years in Arizona and 421 in New Mexico, the smallest group is those eligible only for Medicaid who are placed in HCBS care.

Dually-Eligible Beneficiaries in Nursing Homes

Beneficiaries with joint Medicare and Medicaid coverage who are in nursing homes have a rate of 2.9 inpatient hospital days per person-year in Arizona as compared to 4.1 in New Mexico. Outpatient hospital claims are 8.5 per person-year in Arizona, more than twice the New Mexico rate of 4.1. Average nursing home days per person-year are 333 in Arizona and 348 in New Mexico.

The rate of evaluation and management services per person-year is similar in both states, 15 services in both Arizona and New Mexico. Ten of these visits in Arizona and seven in New Mexico are for nursing home or home visits. The number of procedures performed is four per person-year in both states. More therapies are performed in Arizona, almost one per person-year as compared to 0.02 per person-year in New Mexico. More tests, 17, are done in New Mexico per person-year as compared to Arizona (four per person-year). The rate of imaging is similar in the two states, 3.7 per person-year in Arizona and 3.3 per person-year in New Mexico. The rate of drug prescriptions is also similar across the states, 29 per person-year in Arizona and 27 per person-year in New Mexico.

Dually-Eligible Beneficiaries in HCBS Care

Dually-eligible HCBS beneficiaries are much larger users of almost all types of services, except nursing home services, than are nursing home beneficiaries with dual-eligibility. The number of days of inpatient care per person-year is about equal in both states, 6.6 days in Arizona versus 7.1 days in New Mexico, although New Mexico's allowed charges are about two-thirds of those in Arizona. Outpatient hospital claims are less frequent in New Mexico than Arizona, 4.3 per person-year as compared with 10.7. Nursing home use is about the same in both states (two days per person-year in Arizona and one in New Mexico) and home health use per person-year is greater in New Mexico (1.8 versus 1.0).

The rate of use for evaluation and management services is 23 per person-year in Arizona and 20 in New Mexico. Eleven of these visits are office visits in Arizona and eight are office visits in New Mexico. Seven of these evaluation and management visits are in the hospital for Arizona beneficiaries and eight are in the hospital for those in New Mexico. Four times as many procedures are performed in Arizona than in New Mexico, 16 as compared with four. Almost exactly the same number of tests are performed in each state (13.4 per person-year in Arizona and 13.5 per person-year in New Mexico), but more imaging is done in Arizona (6.5 in Arizona versus 4.9 in New Mexico). Comparison of HCB services shows a smaller number of units in New Mexico than in Arizona (27 versus 40) but substantially larger per person-year paid amounts ($9,483 versus $4,895). This may reflect differences in reporting in the two programs, as discussed earlier. The number of drug prescriptions per person-year is larger in Arizona than in New Mexico (31 versus 27).

Medicaid-Only Beneficiaries in Nursing Homes

In both Arizona and New Mexico, the number of inpatient days is larger for Medicaid-only nursing home beneficiaries than for dually-eligible beneficiaries, although for most other services the rates are lower or about the same. The inpatient day rate is smaller in Arizona than in New Mexico (4.6 days per person-year in Arizona and 5.4 per person-year in New Mexico). Outpatient hospital claims per person-year are larger in Arizona (8) than in New Mexico (2). The number of nursing home days is also larger in Arizona than in New Mexico (319 days per person-year versus 288 per person-year).

The rate of evaluation and management services is 15 per person-year in Arizona and 10 per person-year in New Mexico. Eight of the 15 visits in Arizona are in nursing homes or homes, as are three of the 10 visits in New Mexico. The use rates for procedures per person-year is 1.4 in Arizona and 2.5 in New Mexico. Rates of use for tests, therapies, imaging, and drug prescriptions are larger in Arizona than in New Mexico (8.6 tests versus 8.4 tests, five therapies versus 0.1 therapies, 3.3 images versus 2.0 images, and 35 prescriptions as compared to 19 prescriptions).

Medicaid-Only Beneficiaries in HCBS Care

All of the utilization measures reported except other non-institutional services are larger in Arizona than in New Mexico for Medicaid-only beneficiaries in HCBS care. This includes inpatient hospital days (5.1 versus 4.5), outpatient hospital claims (9.7 versus 3.5), evaluation and management services (17 versus 11), procedures (2.7 versus 2.1), therapies (1.7 versus 0.4), tests (6.9 versus 4.5), imaging (3 versus 2.8), and drugs (25 versus 18).

MR/DD Population Groups

Table 3-10 presents rates of use for two subgroups of the MR/DD population. Note that the placement data in Arizona do not permit us to

Table 3-10

UTILIZATION PER PERSON-YEAR FOR SELECTED MR/DD SUBPOPULATIONS BY TYPE OF SERVICE AND STATE FOR JANUARY 1991 - SEPTEMBER 1992

		Arizona		New Mexico	
		Dually Eligible	Medicaid Only	Dually Eligible	Medicaid Only
PERSON-YEARS		1,889.63	6,339.44	627.03	1,095.42
INSTITUTIONAL					
Inpatient					
	Days	1.40	1.34	1.12	1.94
	Admissions	0.20	0.17	0.20	0.23
	Allowed	1,178	1,100	762	1,060
	Paid	1,044	1,091	658	1,026
Outpatient					
	Claims	1.37	0.58	2.41	2.22
	Allowed	285	161	203	233
	Paid	247	161	162	223
Nursing Facility					
	Days	34.33	9.90	313.49	228.44
	Admissions	0.02	0.00	0.37	0.29
	Allowed	789	93	44,189	33,677
	Paid	770	93	40,948	33,615
Home Health					
	Visits	0.09	0.00	0.05	0.04
	Paid	72	0	33	15
DRUGS					
	Units	15.57	8.89	18.21	6.41
	Paid	273	165	322	169

examine the data by placement. In addition, the utilization measures examined are restricted by the quality of data submitted by DES, the MR/DD contractor.

Dually-eligible beneficiaries make up a smaller percentage of the Arizona MR/DD population than the New Mexico MR/DD population, 23% as compared with 36% in New Mexico (see Table 3-10). The most striking element in the table is the difference in nursing home use between Arizona and New Mexico. Dually-eligible beneficiaries in Arizona have only 34 days per person-year of nursing home use and Medicaid-only beneficiaries have less than ten days per person-year of nursing home use. In New Mexico, both groups have much larger rates of institutionalization. New Mexico dually-eligible beneficiaries have a rate of 313 days per person-year and Medicaid-only New Mexico beneficiaries have 228 days. This can be attributed to Arizona's long-standing policy of treating MR/DD beneficiaries outside of institutions.

Rates of use per person-year reported in Table 3-10 indicate an average of between one and two inpatient hospital days, between 0.6 and 2.4 outpatient hospital claims, and a small number of home health care visits per person-year. Prescription drug use is smallest for Medicaid-only New Mexico beneficiaries (six prescriptions per person-year) and largest for New Mexico dually-eligible beneficiaries (18 prescriptions per person-year). Arizona dually-eligible beneficiaries have 16 prescriptions and Medicaid-only beneficiaries have nine prescriptions per person-year.

Multivariate Analysis of Selected Utilization Variables

Description of the Model

The basic utilization model examines different measures of service utilization (the dependent variables) as a function of a set of independent variables. Measures of service utilization per individual are the dependent variables. The dependent variables presented are: inpatient hospital stays, outpatient hospital visits, evaluation and management services, procedures, and drugs. Each of these utilization measures is totaled for Medicare and

Medicaid. Independent variables are the demographic characteristics of the beneficiaries (age, gender, ethnicity), characteristics of their eligibility (whether they are AFDC or SSI, whether they are a cash recipient, whether they have Medicare coverage), their placement (nursing home or HCBS care) and the state in which they live (Arizona or New Mexico).

Also considered for inclusion in the model were health status variables. These measures were available for the entire ALTCS population but only for a subset of the population in New Mexico. Use of these independent variables for the subgroups for which they were available did not appear to improve the predictability of the model or change the significance of the variables. Because these variables are available only for a subset of the New Mexico population and their availability did not seem to affect the findings, we elected to focus on the models that did not include them.

Thus the model can be expressed as the following regression equation:

$$M_i = \alpha' D_i + \beta' E_i + \gamma P_i + \lambda S_i + \varepsilon_i$$

Where: M_i = Measure of medical service use for person i.

D_i = Vector of j variables representing demographic characteristics of beneficiary i.

E_i = Vector of k variables representing the eligibility characteristics of beneficiary i.

P_i = A dummy variable that equals one if beneficiary i is in a nursing home placement.

S_i = A dummy variable that equals one if beneficiary i is in Arizona.

ε_i = Error term with $E(\varepsilon_i) = 0$

α, β = Vectors of j and k parameter estimates, respectively.

γ, λ = Parameter estimates.

Utilization of services is analyzed using a two part model, where the first equation estimates the likelihood of use for the entire sample and the second equation estimates the amount of use among users. The first equation is modeled using logit and the second equation is estimated using ordinary least squares regression with the natural log of the utilization measures as the dependent variables.

The advantage of the model described is that it takes into account the large proportion of people with no service use and skewness in the distribution among those with positive levels of use.[29]

Results

Models are estimated for inpatient hospital stays, outpatient hospital use, evaluation and management services, procedures, and drugs. Each of these dependent variables are sums of Medicare and Medicaid data. Models are estimated only for EPD beneficiaries because of the missing data problems for MR/DD beneficiaries described earlier.

The first part of each model examines use as the dependent variable. The marginal probability in the probability of use regressions is defined as the change in the expected probability of use with a given dummy variable equal to one and to zero, with all other variables in the model set to the sample mean. The second part focuses on two measures of the amount of use of the dependent variable among users, one related to the number and one related to the dollar value of use. The number value selected differs by the specific type of utilization examined. For inpatient hospital stays it is days of hospital stay; for outpatient hospital it is claims; for evaluation and management services it is services; for procedures it is procedures; and for drugs it is prescriptions. The dollar amount is the sum of Medicare allowed charges and ALTCS or Medicaid allowed charges. Drug use includes only information from the ALTCS and Medicaid data files because Medicare does not cover prescription drugs. Note that in the case of ALTCS data the cost of services is not the actual cost of the service in the capitated ALTCS program, but the amount that would have been paid by ALTCS for fee-for-service reimbursement of these services. The Arizona dollars field does not in any way represent the cost of the capitated program but is a measure of the intensity of service use.

Below we discuss results for each of the types of services examined.

Inpatient Hospital

Table 3-11 examines the factors affecting the probability of having inpatient hospital use. The strongest factor is Medicare coverage, which increases the probability of inpatient use by 14%. Most of the other significant factors in the model decrease the probability of use. Being in a nursing home rather than HCBS care decreases the probability by almost 10%. Being in Arizona decreases it by 8% relative to being in New Mexico. Whites, as compared to those who are not white or Hispanic, are 7% less likely to have an inpatient stay, and Hispanics are slightly less likely (0.3%) to have a hospital stay than those who are not white or Hispanic. Females are 4% less likely to have use than males. Individuals in age groups 65 to 74 and 75 to 84 are not significantly different in their probability of hospitalization than those 65 years of age and younger; however, the oldest age group, those 85 years of age and older, is 4% less likely than the under age 65 group to be hospitalized. Whether the beneficiary receives cash assistance does not have a significant impact on the probability of inpatient use, correcting for the other variables in the model.

Table 3-12 shows the effect of each of the independent variables, correcting for the other independent variables in the model, on the amount of service use among users, i.e., the number of services and dollars. The age variables seem to have a consistent and strong negative impact on the amount of hospital use, both in terms of the number of days and the dollars spent. The older age groups use less days and dollars than the younger age groups. The 65 to 74 age group uses 10% less days and 18% less dollars than the under 65 age group. The 75 to 84 age group uses 29% less days and 30% less dollars than the 65 and under age group, and the 85 and over age group uses 39% less days and 36% less dollars than the under 65 age group.

Being in Arizona reduces the length of stay by 20% but increases the dollars for care by 32% relative to New Mexico. Nursing home residence

Table 3-11

FACTORS AFFECTING THE USE OF INPATIENT HOSPITAL SERVICES AMONG EPD BENEFICIARIES
(Weighted by Person-Years of Coverage)

	Mean	Coefficient	Standard Error	Marginal Probability
Independent Variables				
State				
New Mexico	.339	---	---	---
Arizona	.661	-.360**	.031	-.081
Placement				
HCBS	.201	---	---	---
Nursing Home	.799	-.437**	.037	-.100
Gender				
Male	.284	---	---	---
Female	.716	-.178**	.033	-.040
Ethnicity				
Nonwhite/Non-Hispanic	.092	---	---	---
White	.731	-.308**	.052	-.069
Hispanic	.177	-.151**	.059	-.003
Age				
<65	.162	---	---	---
65-74	.140	.066	.060	.015
75-84	.315	-.029	.055	-.006
85+	.382	-.169**	.056	-.037
Cash Recipient				
No	.840	---	---	---
Yes	.160	-.065	.043	-.014
Medicare Coverage				
No	.113	---	---	---
Yes	.887	.724**	.062	.142
Intercept		-.321**	.074	
Number in Sample		24,331		
Sum of Weights		21,953		
Likelihood Ratio Index		.020		

--- Reference Group
* Significant at p ≤ .05 level
** Significant at p ≤ .01 level

Table 3-12

FACTORS AFFECTING THE AMOUNT OF INPATIENT HOSPITAL USE AMONG EPD USERS OF INPATIENT SERVICES
(Weighted by Person-Years of Coverage)

	Days			Dollars		
Independent Variables	Mean	Coefficient	Standard Error	Mean	Coefficient	Standard Error
State						
New Mexico	.395	---	---	.388	---	---
Arizona	.605	-.196**	.021	.612	.319**	.020
Placement						
HCBS	.247	---	---	.244	---	---
Nursing Home	.753	-.062**	.024	.756	-.004	.023
Gender						
Male	.312	---	---	.312	---	---
Female	.688	-.023	.022	.688	-.004	.021
Ethnicity						
Nonwhite/Non-Hispanic	.103	---	---	.101	---	---
White	.694	-.160**	.034	.696	-.079*	.033
Hispanic	.203	-.138**	.039	.203	-.046	.037
Age						
<65	.154	---	---	.154	---	---
65-74	.161	-.103**	.040	.158	-.181**	.038
75-84	.334	-.294**	.037	.331	-.302**	.036
85+	.351	-.387**	.038	.357	-.362**	.036
Cash Recipient						
No	.849	---	---	.849	---	---
Yes	.151	-.045	.030	.151	-.139**	.029
Medicare Coverage						
No	.084	---	---	.084	---	---
Yes	.916	.000	.045	.916	.290**	.044
Intercept		2.776**	.052		8.780**	.050
Number in Sample		6,799			7,346	
R^2 (adjusted)		.048			.056	

--- Reference Group
* Significant at $p \leq .05$ level, two-tail test
** Significant at $p \leq .01$ level, two-tail test

reduces the length of inpatient stay by 6% but has no significant effect on the associated dollar amounts. Gender did not have a significant effect on either use measure. Whites and Hispanics have less days of care (16% and 14% respectively) relative to other ethnic groups, but only whites have a significant dollar impact (-8%). Cash assistance status does not significantly affect the number of inpatient days, but it does negatively affect the dollars, resulting in 14% less dollars of use. Medicare coverage has no significant effect on the days of care but an increase of 29% on the dollars.

Outpatient Hospital

Table 3-13 shows the results of the logit analysis of the use of outpatient hospital services. As can be seen in the table, the biggest effect on use is having Medicare coverage. Having such coverage increases the probability of use by 29%. The next largest effects are being in Arizona relative to New Mexico (11% higher probability) and being 85 years of age or older as compared to under 65 years of age (11% lower probability). The other age groups between 65 and 85 also have significantly lower probabilities of use, 9% lower for the 75 to 84 age group and 6% lower for the 65 to 74 age group as compared to the 65 and under age group. Correcting for the other independent variables in the model, nursing home residents are 5% more likely to use outpatient hospital services than those in HCBS care. Females are 2% more likely than males to use outpatient hospital services, and whites are 0.3% less likely than other ethnic groups. Those receiving cash assistance as compared to those not receiving cash assistance are not significantly different in the probability of having an outpatient hospital visit.

In Arizona, there are 46% more outpatient claims and 51% more dollars than in New Mexico (see Table 3-14). Again, age has a negative effect on utilization with the older age groups having significantly less use measured in terms of claims and dollars. Those in the 85 and over age group have 32% less claims and 74% less outpatient hospital dollars as compared to those less than 65 years of age. Those 75 to 84 years of age have 25% less claims and

Table 3-13

FACTORS AFFECTING THE USE OF OUTPATIENT SERVICES AMONG EPD BENEFICIARIES (Weighted by Person-Years of Coverage)

Independent Variables	Mean	Coefficient	Standard Error	Marginal Probability
State				
New Mexico	.339	---	---	---
Arizona	.661	.833**	.040	.106
Placement				
HCBS	.201	---	---	---
Nursing Home	.799	.390**	.049	.049
Gender				
Male	.284	---	---	---
Female	.716	.152**	.045	.018
Ethnicity				
Nonwhite/Non-Hispanic	.092	---	---	---
White	.731	-.026	.068	-.003
Hispanic	.177	.102	.078	.011
Age				
<65	.162	---	---	---
65-74	.140	-.492**	.086	-.064
75-84	.315	-.704**	.080	-.089
85+	.382	-.850**	.080	-.105
Cash Recipient				
No	.840	---	---	---
Yes	.160	-.045	.055	-.005
Medicare Coverage				
No	.113	---	---	---
Yes	.887	1.692**	.073	.294
Intercept		.039	.088	
Number in Sample		24,331		
Sum of Weights		21,953		
Likelihood Ratio Index		.070		

--- Reference Group
* Significant at p ≤ .05 level
** Significant at p ≤ .01 level

Table 3-14

FACTORS AFFECTING THE AMOUNT OF OUTPATIENT USE AMONG EPD USERS OF OUTPATIENT SERVICES (Weighted by Person-Years of Coverage)

	Claims			Dollars		
Independent Variables	Mean	Coefficient	Standard Error	Mean	Coefficient	Standard Error
State						
New Mexico	.288	---	---	.306	---	---
Arizona	.712	.459**	.016	.694	.507**	.026
Placement						
HCBS		---	---	.189	---	---
Nursing Home	.818	.020	.019	.811	-.200**	.032
Gender						
Male	.277	---	---	.277	---	---
Female	.723	.053**	.016	.723	-.014	.027
Ethnicity						
Nonwhite/Non-Hispanic	.089	---	---	.088	---	---
White	.739	-.031	.026	.739	-.178**	.043
Hispanic	.172	.067*	.029	.173	.028	.049
Age						
<65	.149	---	---	.151	---	---
65-74	.146	-.087**	.030	.154	-.209**	.050
75-84	.323	-.245**	.028	.321	-.511**	.046
85+	.382	-.324**	.029	.384	-.739**	.047
Cash Recipient						
No	.850	---	---	.847	---	---
Yes	.150	.006	.021	.153	-.139**	.036
Medicare Coverage						
No	.082	---	---	.088	---	---
Yes	.918	.274**	.033	.912	.580**	.054
Intercept		1.696**	.039		6.022	.064
Number in Sample		14,909			17.810	
R^2 (adjusted)		.067			.053	

--- Reference Group
* Significant at p ≤ .05 level, two-tail test
** Significant at p ≤ .01 level, two-tail test

51% less dollars and those aged 65 to 74 have 9% less claims and 21% less dollars than the 65 and under population. Medicare coverage increases the number of claims by 27% and the dollars by 58%.

Significant positive impacts on the number of outpatient claims but not the dollars are seen for females (+5%) and Hispanics (+7%) as compared with other ethnic groups. Being in a nursing home does not appear to affect the number of claims but results in 20% less costly service use than being in HCBS care. Being white as compared with other ethnic groups also tends to reduce the outpatient dollars by 18%. Those receiving cash assistance have no significant difference in the number of claims, but a 14% smaller cost of services.

Evaluation and Management Services

Medicare coverage again strongly affects the probability of having an evaluation and management service (see Table 3-15). Those having Medicare coverage are 18% more likely to have such a service than those without such coverage. Being placed in a nursing home rather than in HCBS care increases the probability of having an evaluation and management service by 3%, as does being in Arizona versus New Mexico by 2%. Being white and Hispanic both increase the probability of use relative to other ethnic groups. Whites have a 3% greater probability and Hispanics have a 2% greater probability. Females have a significantly larger probability of having an evaluation and management services than males, although the magnitude is small (0.9%). Older age groups have lower probabilities of use with the two age groups 75 years and over having a 3% lower probability of use than those under age 65. Those aged 65 to 74 years also have a significantly lower probability of use than those under 65, and the magnitude of this probability is very small, 0.2%. Whether the beneficiary receives cash assistance does not affect the probability of use of an evaluation and management service.

Among service users, those covered by Medicare have 39% more services and 55% more dollars than those without Medicare coverage (see Table 3-16).

Table 3-15

FACTORS AFFECTING THE USE OF EVALUATION AND MANAGEMENT SERVICES AMONG EPD BENEFICIARIES

(Weighted by Person-Years of Coverage)

Independent Variables	Mean	Coefficient	Standard Error	Marginal Probability
State				
New Mexico	.339	---	---	---
Arizona	.661	1.079**	.085	.020
Placement				
HCBS	.201	---	---	---
Nursing Home	.799	1.199**	.087	.027
Gender				
Male	.284	---	---	---
Female	.716	.537**	.083	.009
Ethnicity				
Nonwhite/Non-Hispanic	.092	---	---	---
White	.731	1.394**	.099	.031
Hispanic	.177	1.537**	.126	.016
Age				
<65	.162	---	---	---
65-74	.140	-1.279**	-.141	-.002
75-84	.315	-1.407**	-.138	-.030
85+	.382	-1.474**	-.143	-.029
Cash Recipient				
No	.840	---	---	---
Yes	.160	.258**	-.101	.004
Medicare Coverage				
No	.113	---	---	---
Yes	.887	3.055**	.113	.180
Intercept		-.755**	.129	
Number in Sample		24,331		
Sum of Weights		21,953		
Likelihood Ratio Index		.255		

--- Reference Group

* Significant at $p \le .05$ level

** Significant at $p \le .01$ level

Table 3-16

FACTORS AFFECTING THE AMOUNT OF EVALUATION AND MANAGEMENT USE AMONG EPD USERS OF EVALUATION AND MANAGEMENT SERVICES

(Weighted by Person-Years of Coverage)

	Services			Dollars		
Independent Variables	Mean	Coefficient	Standard Error	Mean	Coefficient	Standard Error
State						
New Mexico	.329	---	---	.330	---	---
Arizona	.671	-.047**	.012	.670	.313**	.013
Placement						
HCBS	.186	---	---	.191	---	---
Nursing Home	.814	-.033*	.015	.809	.113**	.016
Gender						
Male	.275	---	---	.277	---	---
Female	.725	.028*	.013	.723	.045**	.014
Ethnicity						
Nonwhite/Non-Hispanic	.080	---	---	.084	---	---
White	.744	.088**	.021	.740	.146**	.022
Hispanic	.176	.061**	.023	.176	.237**	.025
Age						
<65	.150	---	---	.154	---	---
65-74	.140	.040	.023	.140	.056*	.026
75-84	.320	-.035	.022	.318	-.018	.024
85+	.390	-.122**	.022	.388	-.118**	.024
Cash Recipient						
No	.847	---	---	.844	---	---
Yes	.153	-.097**	.016	.156	-.124**	.018
Medicare Coverage						
No	.091	---	---	.096	---	---
Yes	.909	.385**	.025	.904	.546**	.027
Intercept		2.395**	.030		5.423**	.032
Number in Sample		20,185			21,742	
R^2 (adjusted)		.031			.075	

--- Reference Group
* Significant at $p \leq .05$ level, two-tail test
** Significant at $p \leq .01$ level, two-tail test

Females as compared to males and whites and Hispanics as compared to other ethnic groups also have more services and dollars. The oldest age group, 85 and over, has 12% less services and 12% less dollars than those under 65 years of age, as do those receiving cash assistance. Being in Arizona as compared with New Mexico results in 5% less services but 31% more dollars of care.

Procedures

As shown in Table 3-17, having Medicare coverage is also a very important factor in whether a beneficiary has a procedure, resulting in a 27% higher probability of use. Being Hispanic or white results in a 10% higher (Hispanic) and 8% higher (white) probability of having a procedure than being from another ethnic group. Being in Arizona as compared to New Mexico reduces the probability of use by 7%, as does being in a nursing home rather than HCBS care by 3%. Age group has a significant effect only on those individuals 85 years of age and older, where a 2% lower use of procedures is observed for that age group as compared with those less than 65.

Among users, Medicare coverage again has a large impact on use (see Table 3-18). Those with Medicare coverage have 56% more service use and 29% more dollars than those without coverage. An important negative factor is being in Arizona, where number of procedures is 38% less and dollars 27% less than in New Mexico. Those in a nursing home have 6% less services and 20% less dollars than those in HCBS care. Being white or Hispanic as compared to other ethnicity groups is also related to smaller service use and dollars. Whites have 25% less procedure use and 22% less dollars, and Hispanics have 25% less procedure use and 18% less dollars than those who are not white or Hispanic. Age also has a negative impact on use of procedures. The decrease in service use ranges from 25% for those aged 65 to 75 years to 45% for those aged 75 to 84 years to 48% for those 85 years of age or older compared with those under age 65. Those aged 65 to 74 years experience a dollar difference in procedures of -9% relative to those under 65. Those 75 to 84 have 26% less use and those 85+ have 48% less use.

Table 3-17

FACTORS AFFECTING THE USE OF PROCEDURES AMONG EPD BENEFICIARIES (Weighted by Person-Years of Coverage)

Independent Variables	Mean	Coefficient	Standard Error	Marginal Probability
State				
New Mexico	.339	---	---	---
Arizona	.661	-.297**	.030	-.072
Placement				
HCBS	.201	---	---	---
Nursing Home	.799	-.128**	.037	-.031
Gender				
Male	.284	---	---	---
Female	.716	.000	.032	.000
Ethnicity				
Nonwhite/Non-Hispanic	.092	---	---	---
White	.731	.310**	.050	.076
Hispanic	.177	.410**	.058	.098
Age				
<65	.162	---	---	---
65-74	.140	.094	.059	.023
75-84	.315	.052	.054	.013
85+	.382	-.079	.054	-.019
Cash Recipient				
No	.840	---	---	---
Yes	.160	.014	.042	.003
Medicare Coverage				
No	.113	---	---	---
Yes	.887	1.125**	.058	.273
Intercept		-.714**	.072	
Number in Sample		24,331		
Sum of Weights		21,953		
Likelihood Ratio Index		.027		

--- Reference Group
* Significant at $p \leq .05$ level
** Significant at $p \leq .01$ level

Table 3-18

FACTORS AFFECTING THE AMOUNT OF PROCEDURES AMONG EPD USERS OF PROCEDURES (Weighted by Person-Years of Coverage)

	Procedures			Dollars		
Independent Variables	Mean	Coefficient	Standard Error	Mean	Coefficient	Standard Error
State						
New Mexico	.400	---	---	.364	---	---
Arizona	.600	-.380**	.022	.636	-.270**	.033
Placement						
HCBS	.194	---	---	.200	---	---
Nursing Home	.806	-.064*	.028	.800	-.222**	.041
Gender						
Male	.277	---	---	.277	---	---
Female	.723	.085**	.024	.723	.033	.036
Ethnicity						
Nonwhite/Non-Hispanic	.073	---	---	.075	---	---
White	.729	-.247**	.042	.736	-.221**	.061
Hispanic	.198	-.251**	.047	.189	-.175*	.068
Age						
<65	.125	---	---	.129	---	---
65-74	.156	-.250**	.046	.149	-.090	.068
75-84	.334	-.446**	.043	.335	-.263**	.063
85+	.385	-.482**	.044	.387	-.477**	.064
Cash Recipient						
No	.864	---	---	.859	---	---
Yes	.136	.019	.033	.141	-.076	.048
Medicare Coverage						
No	.063	---	---	.067	---	---
Yes	.937	.559**	.055	.933	.291**	.080
Intercept		2.024**	.063		5.897**	.091
Number in Sample		7,797			10,774	
R^2 (adjusted)		.061			.022	

--- Reference Group
* Significant at $p \leq .05$ level, two-tail test
** Significant at $p \leq .01$ level, two-tail test

Drugs

Table 3-19 shows the factors affecting the use of drugs. Being in a nursing home has the largest impact in the model on the probability of drug usage. Those in nursing homes are 9% more likely to have a drug prescription filled under Medicaid than those in HCBS care. Being white or Hispanic as compared with other ethnic groups also has a large effect on the probability of drug usage, with a 7% higher probability for Hispanics and 6% higher probability for whites. Females, those in Arizona, and those with Medicare coverage are all 3% more likely to have a drug prescription.

Among users, Medicare coverage increases the number of prescriptions among those with prescriptions by 24% and the dollars by 16% (see Table 3-20). Being female increases use by 15% for the number of prescriptions and 16% for dollars relative to being male. Whites, as compared to ethnic groups that are not white and not Hispanic, have 25% more prescriptions and 26% more dollars, and Hispanics have 17% more use and 23% more dollars. Those in Arizona have 3% more prescriptions than those in New Mexico but no significant difference in dollars. Placement does not have an impact on prescription use. Those in older age groups have less use. Individuals 75 to 84 years of age have 17% less prescriptions and 27% less dollars, and those 85 years and older have 35% less prescriptions and 56% less dollars as compared to individuals 65 years of age and younger.

Summary and Policy Implications

This chapter examines the utilization experience of chronic long-term care beneficiaries in two state Medicaid programs. To get a measure of overall service use by these beneficiaries, we combine Medicare and Medicaid services reported by the Medicare program and the Medicaid programs in each of their respective data files. Medicare is the first payer on all services covered by the Medicare program for beneficiaries having joint Medicare and Medicaid eligibility.

Table 3-19

FACTORS AFFECTING THE USE OF DRUGS AMONG EPD BENEFICIARIES (Weighted by Person-Years of Coverage)

Independent Variables	Mean	Coefficient	Standard Error	Marginal Probability
State				
New Mexico	.339	---	---	---
Arizona	.661	.629**	.039	.025
Placement				
HCBS	.201	---	---	---
Nursing Home	.799	.637**	.045	.091
Gender				
Male	.284	---	---	---
Female	.716	.263**	.042	.034
Ethnicity				
Nonwhite/Non-Hispanic	.092	---	---	---
White	.731	.465**	.059	.063
Hispanic	.177	.595**	.070	.065
Age				
<65	.162	---	---	---
65-74	.140	-.240**	.075	-.032
75-84	.315	-.144*	.070	-.019
85+	.382	-.131	.071	-.017
Cash Recipient				
No	.840	---	---	---
Yes	.160	-.500**	.049	-.071
Medicare Coverage				
No	.113	---	---	---
Yes	.887	.241**	.070	.032
Intercept		.194*	.083	
Number in Sample		24,331		
Sum of Weights		21,953		
Likelihood Ratio Index		.043		

--- Reference Group
* Significant at p ≤ .05 level
** Significant at p ≤ .01 level

Table 3-20

FACTORS AFFECTING THE AMOUNT OF DRUG USE AMONG EPD USERS OF DRUGS

(Weighted by Person-Years of Coverage)

	Prescriptions			Dollars		
Independent Variables	Mean	Coefficient	Standard Error	Mean	Coefficient	Standard Error
State						
New Mexico	.308	---	---	.318	---	---
Arizona	.692	.029**	.018	.682	.040	.024
Placement						
HCBS	.179	---	---	.180	---	---
Nursing Home	.821	.043	.023	.820	-.045	.030
Gender						
Male	.271	---	---	.272	---	---
Female	.729	.154**	.020	.728	.156**	.026
Ethnicity						
Nonwhite/Non-Hispanic	.079	---	---	.081	---	---
White	.747	.251**	.032	.744	.261**	.041
Hispanic	.174	.171**	.036	.175	.230**	.047
Age						
<65	.151	---	---	.152	---	---
65-74	.138	.000	.035	.137	-.033	.046
75-84	.319	-.168**	.032	.319	-.274**	.042
85+	.392	-.348**	.033	.392	-.555**	.043
Cash Recipient						
No	.861	---	---	.857	---	---
Yes	.139	-.217**	.026	.143	-.364**	.034
Medicare Coverage						
No	.099	---	---	.102	---	---
Yes	.901	.237**	.036	.898	.163**	.047
Intercept		2.99**	.045		5.81**	.059
Number in Sample		16,983			17,866	
R^2 (adjusted)		.027			.027	

--- Reference Group
* Significant at $p \leq .05$ level, two-tail test
** Significant at $p \leq .01$ level, two-tail test

The Arizona system, called ALTCS, differs significantly from the fragmented New Mexico system that is typical of current Medicaid programs. ALTCS screens beneficiaries for risk of institutionalization. If deemed eligible, beneficiaries are enrolled with one of the prepaid contractors that is capitated by the state to provide a full range of acute and long-term care services. The contractor in turn determines the level of care at which the beneficiaries are placed (HCBS care or nursing home care) and case manages the services they receive.

New Mexico operates as a more traditional Medicaid program. Medicaid beneficiaries who meet long-term care eligibility criteria can receive either nursing home services or HCB services. However, these services are administered by separate agencies and individuals must choose between them upon entry to the long-term care system. Preadmission screening for nursing homes is completed by nursing home personnel and approved by the New Mexico PRO under contract with the state. The same preadmission screening instrument is used for the HCBS program, but is completed by the patient's physician before being sent to the New Mexico PRO. Acute care services are provided through the traditional Medicaid program.

The dollar values of the services presented in this report are measures of utilization in that they are the values given by the respective programs to the services received. For Medicare and the New Mexico Medicaid program, they are the dollar amounts allowed by the programs and are therefore directly related to the cost of the programs. For Arizona, this dollar value is not related to the cost of delivering the services. Rather, it is the amount ALTCS would have allowed in the its fee-for-service program for the services received.

When the dollar values from the Medicare and Medicaid programs are combined, the two states exhibit notably similar results by EPD population subgroup. These values are shown below and in more detail by type of service in Table 3-21:

	Arizona	New Mexico
Dual Eligibles in Nursing Homes	30,071 (N=10,767)	30,029 (N=5,709)
Dual Eligibles in HCBS Care	18,860 (N=2,300)	18,810 (N=1,292)
Medicaid-Only Eligibles in Nursing Homes	31,943 (N=845)	28,037 (N=791)
Medicaid-Only Eligibles in HCBS Care	15,125 (N=593)	16,271 (N=421)

These numbers indicate similar intensity of service use in Arizona and New Mexico, especially among dually-eligible beneficiaries, assuming that there are not wide differences in how the two Medicare carriers and the two Medicaid programs value services. This should be encouraging to those concerned about under-utilization of services in a capitated system.

When data for institutional services for MR/DD beneficiaries are examined, we immediately see the difference in treatment style in the two states (see below and Table 3-22):

	Arizona	New Mexico
Dual Eligibles	2,597 (N=1,890)	45,509 (N=627)
Medicaid-Only Eligibles	1,519 (N=6,339)	35,154 (N=1,095)

It is apparent from these data that Arizona MR/DD beneficiaries are most commonly served in HCBS care while in New Mexico they are most often in nursing homes. Unfortunately, data that would give us a sense of total dollar equivalences for non-institutional services are not available because of quality problems with the Arizona MR/DD data that was transmitted from DES to ALTCS.

Table 3-21

TOTAL DOLLARS OF USE PER PERSON-YEAR FOR EPD SUBPOPULATIONS BY TYPE OF SERVICE AND STATE

	Arizona				New Mexico			
	Dually Eligible NH	Dually Eligible HCBS	Medicaid Only NH	Medicaid Only HCBS	Dually Eligible NH	Dually Eligible HCBS	Medicaid Only NH	Medicaid Only HCBS
Institutional								
Inpatient	3,102	6,355	4,746	4,331	2,420	4,305	3,080	2,889
Outpatient	1,141	2,073	999	1,894	781	763	314	651
Nursing Facility	23,236	136	23,044	42	24,637	108	22,980	0
Home Health	6	856	0	7	31	811	158	286
Non-Institutional								
Evaluation and Management	709	948	682	661	490	712	267	303
Procedures	316	730	321	555	305	491	153	228
Therapies	59	10	290	50	0	8	2	5
Tests	55	162	135	86	147	142	93	56
Imaging	86	183	135	178	83	171	57	114
Other	885	1,939	766	1,716	622	1,148	479	1,796
HCBS	7	4,895	18	5,058	0	9,483	0	9,229
Drugs*	469	573	807	547	513	668	454	714
Total	30,071	18,860	31,943	15,125	30,029	18,810	28,037	16,271

---

* Paid amount rather than allowed amount

Table 3-22

TOTAL DOLLARS OF USE PER PERSON-YEAR FOR MR/DD SUBPOPULATIONS BY TYPE OF SERVICE AND STATE

	Arizona		New Mexico	
	Dually Eligible	Medicaid Only	Dually Eligible	Medicaid Only
Institutional				
Inpatient	1,178	1,100	762	1,060
Outpatient	285	161	203	233
Nursing Facility	789	93	44,189	33,677
Home Health	72	0	33	15
Drugs*	273	165	322	169
Total	2,597	1,519	45,509	35,154

---

* Paid amount rather than allowed amount

In order to assess the impact of the Arizona program on utilization, we examine five dependent variables in a multivariate content. These variables are: inpatient hospital days, outpatient hospital visits, evaluation and management services, procedures and prescription drugs. Independent variables in the model include demographic characteristics of the beneficiary, characteristics of the beneficiary's eligibility, placement and state. The analysis is conducted in two stages with the first stage modeling the probability of use and the second the amount of use among users.

Table 3-23 shows a summary of the percent change in the probability of use for each independent variable in the logit model for each of the five dependent variables. Table 3-24 is a summary of the independent effects of each of the independent variables in the regression models on the use of services among users for each dependent variable.

Analysis of the utilization measures in a multivariate context that includes controls for demographic characteristics (age, gender, ethnicity), eligibility characteristics (receiving cash assistance, Medicare coverage) and placement (nursing home, HCBS care) indicates that being a beneficiary in ALTCS rather than the New Mexico Medicaid program increases the probability that:

- beneficiaries have one or more outpatient claims,
- beneficiaries have one or more evaluation and management services, and
- beneficiaries have one or more prescription drugs.

Being a beneficiary in ALTCS rather than the New Mexico Medicaid program is found to decrease the probability that:

- beneficiaries have inpatient hospital use, and
- beneficiaries have one or more procedures.

With respect to the amount of use among users by specific type of service, being a beneficiary in ALTCS rather than the New Mexico Medicaid program significantly reduces:

- the days but not the dollars of inpatient use,
- the number and dollars of procedures, and
- the number but not the dollars of evaluation and management services.

Table 3-23

PERCENT CHANGE IN THE PROBABILITY OF USE FOR INDEPENDENT VARIABLES BY TYPE OF SERVICE

Independent Variables	Inpatient	Outpatient	Evaluation and Management	Procedures	Drugs
State					
New Mexico	--	--	--	--	--
Arizona	-8	11	2	-7	3
Placement					
HCBS	--	--	--	--	--
Nursing Home	-10	5	3	-3	9
Gender					
Male	--	--	--	--	--
Female	-4	2	.9	NS	3
Ethnicity					
Nonwhite/Non-Hispanic	--	--	--	--	--
White	-7	NS	3	8	6
Hispanic	-.3	NS	2	10	7
Age					
<65	--	--	--	--	--
65-74	NS	-6	-.2	NS	-3
75-84	NS	-9	-3	NS	-2
85+	-4	-11	-3	NS	NS
Cash Recipient					
No	--	--	--	--	--
Yes	NS	NS	.4	NS	-7
Medicare Coverage					
No	--	--	--	--	--
Yes	14	29	18	27	3

NS denotes independent variables that are not statistically significant at $p \leq 0.05$

-- Reference Group

Table 3-24

PERCENT CHANGE IN THE AMOUNT OF SERVICE USE FOR SERVICE USERS FOR INDEPENDENT VARIABLES BY TYPE OF SERVICE

Independent Variables	Inpatient		Outpatient		Evaluation and Management		Procedures		Drugs	
	Days	$	Claims	$	Services	$	Services	$	Rx	$
State										
New Mexico	--	--	--	--	--	--	--	--	--	--
Arizona	-20	32	46	51	-5	31	-38	-27	3	NS
Placement										
HCBS	--	--	--	--	--	--	--	--	--	--
Nursing Home	-6	NS	NS	-20	-3	11	-6	-22	NS	NS
Gender										
Male	--	--	--	--	--	--	--	--	--	--
Female	NS	NS	5	NS	3	5	9	NS	15	16
Ethnicity										
Nonwhite/Non-Hispanic	--	--	--	--	--	--	--	--	--	--
White	-16	-8	NS	-18	9	15	-25	-22	25	26
Hispanic	-14	NS	7	NS	6	24	-25	-18	17	23
Age										
<65	--	--	--	--	--	--	--	--	--	--
65-74	-10	-18	-9	-21	NS	6	-25	NS	NS	NS
75-84	-29	-30	-25	-51	NS	NS	-45	-26	-17	-27
85+	-39	-36	-32	-74	-12	-12	-48	-48	-35	-56
Cash Recipient										
No	--	--	--	--	--	--	--	--	--	--
Yes	NS	-14	NS	-14	-10	-12	NS	NS	-22	-36
Medicare Coverage										
No	--	--	--	--	--	--	--	--	--	--
Yes	NS	29	27	58	39	55	56	29	24	16

$ are allowed charges, except for drugs which are paid charges
NS denotes independent variables that are not statistically significant at $p \le 0.05$
-- Reference Group

Being a beneficiary in ALTCS rather than the New Mexico Medicaid program significantly increases:

- the number and dollars of outpatient hospital claims, and
- the number of prescriptions.

The effects of the control variables correcting for the other variables in the models can also be seen in Tables 3-23 and 3-24. Nursing home placement rather than HCBS placement results in a decreased likelihood of inpatient and procedures use and increased likelihood of use of outpatient services, prescriptions, and evaluation and management services. Among users, nursing home placement nearly always reduces the amount of use, except for evaluation and management services for which it is positively associated with dollar use.

Being female reduces the likelihood of inpatient use, but increases the likelihood of prescription drug use, outpatient hospital care, and has a small but statistically significant positive effect on the use of evaluation and management services. Among users, being female increases the number and dollars of prescriptions, the number and dollars of evaluation and management services, the number of procedures, and the number of outpatient claims.

Being white rather than nonwhite/non-Hispanic is associated with a smaller probability of use of inpatient hospital services, but a larger probability of use of procedures, prescription drugs, and evaluation and management services. Among users, being white increases the use of evaluation and management services and prescriptions, and decreases the amount of procedures, inpatient care, and the dollars of outpatient hospital use.

Being Hispanic rather than nonwhite/non-Hispanic is related to a slightly smaller probability of inpatient use, but a greater probability of use of procedures, prescriptions, and evaluation and management services. Among users, being Hispanic decreases the amount of procedures and the number of inpatient days. It increases the number of prescriptions, the number of evaluation and management services, and the number of outpatient claims.

Older age groups generally have smaller probabilities of service use and smaller amounts of use among users. Note that users aged 85 and older relative to those under 65 years of age have:

- 39% less inpatient days and 36% less dollars,
- 32% less outpatient claims and 74% less dollars,
- 12% less evaluation and management services and dollars,
- 48% less procedures and dollars, and
- 35% less prescriptions and 56% less dollars.

Being on cash assistance has little effect on any of the utilization measures. It reduces the likelihood of prescription usage by 7% and has a small but statistically significant positive effect on evaluation and management service use. Among users, being on cash assistance decreases use, affecting the number and dollars of prescriptions, the number and dollars of evaluation and management services, and the dollars of inpatient and outpatient hospital claims.

Having Medicare coverage has the strongest impact on whether there is any service use. Inpatient care (+14%), outpatient claims (+29%), evaluation and management services (+18%), and procedures (+27%) all have their probability of use increase substantially. Even prescription drug usage is significantly affected by the presence of Medicare coverage, although the magnitude of the effect is smaller (3%). Among users, increases are statistically significant and large for all services analyzed except the number of inpatient days. These average increases for those with Medicare coverage are:

- 29% more dollars for inpatient care,
- 27% more claims and 58% more dollars for outpatient hospital care,
- 39% more services and 55% more dollars for evaluation and management services,
- 56% more procedures and 29% more dollars for procedures, and
- 24% more prescriptions and 16% more dollars for prescription drugs.

This chapter has reported on the utilization of Medicare and Medicaid services by chronic long-term care beneficiaries in Arizona and New Mexico. Combining data from the two programs permits us to analyze the total utilization of services that were paid for by these public programs. In addition, we are able to observe service use within two different organizational systems of service delivery that might be hypothesized to affect service used.

Patterns of use observed in Arizona seem more consistent with a managed care environment than those observed in New Mexico. Controlling for other variables, EPD beneficiaries in Arizona have less inpatient days and less procedures than those in New Mexico. For MR/DD beneficiaries, there is less use of nursing home care in Arizona as compared to New Mexico. Overall intensity of service use seems similar across the states, especially for dually-eligible beneficiaries. This implies that managed care for long-term care programs may have its biggest impact on the kinds and distribution of services used to meet the needs of the beneficiaries.

While results are far from definitive, it is clear that chronic long-term care is an expensive proposition for the public programs that support it. Numbers reported here indicate public program costs of 20 to 30 thousand dollars per person-year depending on placement and coverage. Rationalization of the delivery system into a more integrated model and of the financing system to a capitated mode seems to provide a workable alternative to traditional fee-for-service models, one that will likely provide a different distribution of service use, de-emphasizing the use of institutional services and specialty care.

4. MEDICAID UTILIZATION BY ACUTE CARE MEDICAID BENEFICIARIES

Introduction

Medicaid managed care delivery systems are growing nationwide. As of June 1994, there were approximately 7.7 million people enrolled in 337 Medicaid managed care plans in 43 states throughout the country, more than double the number of Medicaid beneficiaries enrolled in managed care just two years earlier.[30] Nearly 70% of Medicaid managed care beneficiaries are enrolled in plans that are fully or partially capitated for services provided. The Arizona Health Care Cost Containment System (AHCCCS) program accounts for about 5% of all Medicaid managed care beneficiaries nationwide and nearly 7% of all beneficiaries enrolled in fully or partially capitated plans.

Of paramount interest is whether managed care delivery systems more rationally deliver care to Medicaid beneficiaries than traditional fee-for-service delivery systems. Utilization of medical care services is of substantial importance to study not only because of its direct connection with program costs, but also because of the insights it brings to assessing quality of care. One of the arguments for Medicaid managed care programs is that they provide better primary or preventive services than traditional Medicaid programs, and their members use considerably less inpatient care.

This chapter examines the utilization of services by AHCCCS acute care beneficiaries and compares their service use to that of acute care beneficiaries in New Mexico's Medicaid program, a more traditional fee-for-service program. New Mexico was selected as a comparison site because of similarities between the two states in terms of geography, climate, population demographics, and health care resources. We also compare the service use in Arizona and New Mexico against that reported for other population groups.

Below we describe the methodology for the study including defining the study population, data sources, definitions, and data quality issues. Following that, we describe the study population and present utilization measures. We then turn to an assessment of utilization data available from other sources and compare utilization data reported for Arizona and New Mexico with data from these sources. The chapter concludes with a summary and discussion of policy implications.

Methodology

Defining the Study Population

Because of the large number of beneficiaries, a five-percent random sample of beneficiaries in each state was selected. Beneficiaries who are eligible for both Medicare and Medicaid are excluded from the study population. We also omit those receiving chronic long-term care in the two states: ALTCS eligibles in Arizona and Medicaid eligibles in New Mexico who are deemed to be at risk of institutionalization. The Arizona sample does not include beneficiaries eligible under state-only eligibility (i.e., the Medically Needy and Medically Indigent, and those in the Children's Care Program) and is limited to those beneficiaries enrolled in capitated acute care plans. The final analysis file consists of 25,430 person-years of coverage, representing 25,224 individuals, in Arizona and 13,604 person-years of coverage in New Mexico, representing 11,658 individuals. Below we describe some issues pertaining to each of the states in more detail.

Arizona

Those Not In AHCCCS Plans

The State of Arizona, through its AHCCCS program, contracts with acute care plans to provide a full range of covered Medicaid services to their enrolled beneficiaries. Plans are paid a capitated amount by category of eligibility and county of residence. A listing of the AHCCCS acute care plans participating during fiscal year 1991 and 1992 (FY 91 and FY 92) and the person-years of coverage over the 24-month period is given in Table 4-1. Note that the data presented in the table are for a five-percent randomly selected sample of acute care beneficiaries, excluding those with state-only or dual Medicare/Medicaid eligibility.

During the period of our study (October 1990 - September 1992), there are 32,062 person-years of AHCCCS coverage, of which 21% (6,632 out of 32,062) are for beneficiaries during periods when they are not enrolled in a prepaid plan. Thus, this group makes up a rather large percentage of the potential person-years of coverage. Examination of their characteristics indicates similarity to the characteristics of beneficiaries enrolled with acute care plans, except that a larger percentage of Native Americans are represented in the group not enrolled with acute care plans.[31] With respect to service use, this group is a larger user of inpatient services and smaller user of physician and ancillary services. Given these differences and the overall size of the group, we decided to exclude these beneficiaries from the data reported in this chapter.

Dual Eligibles

Utilization data on dually-eligible beneficiaries in the AHCCCS program are likely understated. While AHCCCS plans in theory report joint Medicare/Medicaid (crossover) services to AHCCCS, in practice they are often never observed because providers do not submit a claim or encounter to an AHCCCS plan. Providers may have little incentive to submit claims or encounters for crossover services to an AHCCCS plan because they will not receive additional reimbursement beyond the Medicare payment. Given that we do not have information on Medicare utilization from the Medicare data files and that underreporting of utilization in the AHCCCS files is likely, we decided to exclude the dually eligible. This removed 1,831 out of 27,261 person-years of coverage for beneficiaries enrolled in capitated plans.

Table 4-1

PERSON-YEARS OF ENROLLMENT* BY AHCCCS PLAN FOR THE PERIOD FY 91 AND FY 92

(5% Random Sample of Beneficiaries)

Plan Name	Person-Years
Advantage Health Plan	724
Arizona Physicians Independent Physicians' Association	8,396
Comprehensive AHCCCS Plan	334
Doctors' Health Plan	211
Family Health Plan of Northeastern Arizona	1,082
Health Choice Arizona	723
Maricopa County Health Plan	2,896
Mercy Care Plan	4,903
Northern Arizona Family Health Plan	463
Phoenix Health Plan	2,500
Pima Health System	1,034
Regional AHCCCS Health Plan	681
Samaritan Health Service	140
University Famli-Care	1,343
All Plans	25,430
All AHCCCS Eligibles	32,062

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* Excluding state-only beneficiaries and those who are dually eligible.

New Mexico

PCCM Program

The New Mexico Medicaid program provides services to its beneficiaries based on fee-for-service reimbursement. During the two-year period of our study, however, a primary care case management (PCCM) program was introduced. The PCCM program saw its first enrollees during the third quarter of calendar year 1991. In the first year of our data (FY 91) only a small number of individuals are enrolled in the PCCM program. In FY 92, 39% of the person-years of coverage are connected to PCCM beneficiaries. The percentage varies across the three eligibility groups: Aid to Families with Dependent Children (AFDC), Supplemental Security Income (SSI), and Sixth Omnibus Budget Reconciliation Act (SOBRA). A larger percentage of the AFDC and SOBRA beneficiaries are enrolled in PCCM (43% of AFDC person-years, 41% of SOBRA person-years), as compared to SSI beneficiaries (26%). Thus, as Medicaid programs in general are integrating elements of managed care, our comparison group can be viewed more as a typical Medicaid program than a traditional fee-for-service program.

Dual Eligibles

Although total dollar amounts of coverage are reported for crossover services for dually-eligible beneficiaries, this utilization cannot be identified by type of service in the New Mexico Medicaid data files. Thus we decided to exclude dually-eligible beneficiaries, removing 1,961 person-years of coverage in New Mexico.

Data

The utilization analysis presented here is based on encounter and claims data for beneficiaries enrolled in AHCCCS acute care plans, and Medicaid claims processed by the New Mexico fiscal intermediary, First Health Services (FHS), for New Mexico Medicaid beneficiaries who do not receive chronic long-term care services. These data were transferred from AHCCCS to Laguna Research Associates (LRA) in October and November 1993 and from FHS to LRA in July 1993.

Utilization is reported as a rate of use (number, allowed dollars and paid dollars) per person-year of eligibility. Rates of utilization are calculated by dividing the number of services, allowed dollars, and paid dollars used in the program from October 1990 through September 1992 (FY 91 and FY 92) by the number of person-years of eligibility during the same time period.

Utilization data for AHCCCS beneficiaries include both fee-for-service claims and encounter data for services received during their term of enrollment with a prepaid plan. Most of the fee-for-service claims for capitated beneficiaries are connected to the use of family planning services by members of an AHCCCS plan that does not provide these services. The other main reason for a fee-for-service claim for these enrollees is provider grievance claims. For example, because of lags in updating enrollment files, a provider may be told erroneously by AHCCCS that a beneficiary is a fee-for-service beneficiary when in reality that beneficiary is enrolled in a plan.

Reinsurance and deferred liability (RIDL) claims are not included in the AHCCCS data presented. AHCCCS has a reinsurance program that insures health plans against beneficiaries having expenses over a threshold amount, determined by the size of the plan. After the threshold is reached, the AHCCCS program pays 80% of the cost. Plans must submit reinsurance claims to AHCCCS to receive reimbursement. In addition, plans do not become responsible immediately for certain types of beneficiaries (for example, those hospitalized at the time of admission or undergoing active radiation or chemotherapy, women in the final two weeks of a complicated pregnancy, and certain sick newborns). As with reinsurance, plans must submit a deferred liability claim to the program and receive 50% of the cost.

Overall, RIDL claims result in 0.25 claims per person-year and $97 paid per person-year. Rates are smallest for AFDC beneficiaries (0.08 claims, $37 per person-year), next smallest for SOBRA beneficiaries (0.19 claims, $97 per person-year), and largest for SSI beneficiaries (1.85 claims, $594 per person-year).

Service Category Definitions

Rates of utilization are calculated separately for each type of service (e.g., inpatient hospital, evaluation and management services, procedures, etc.). The categorization employed for institutional services (see Figures 4-1 and 4-2) was developed by LRA based on previous LRA categorizations and on those developed by the Minnesota Utilization Data Definitions Committee.[32] The categorization employed for non-institutional services (see Figure 4-3) is one adapted by LRA from the Urban Institute Type-of-Service Classification System.[33]

Institutional services are defined as those that are typically billed on a UB-92 claim form. These include inpatient hospital services, outpatient hospital services, nursing home services, and home health services.

Non-institutional services are those typically billed on a HCFA 1500 claim form. These include services we classify as evaluation and management services, procedures, maternity services, imaging, tests, and other. Evaluation and management services include most medical physician visits, i.e., office visits, hospital visits, emergency room services, nursing home and home visits, consultations, and specialty-specific services. Procedures include major procedures such as orthopedic procedures; ambulatory procedures such as hernia repairs; minor procedures such as immunizations; endoscopy procedures; oncology procedures; and dialysis services. Maternity evaluation and management services, procedures, and global fees are reported under a separate category, maternity services. Tests include both laboratory tests and non-laboratory tests (e.g., electrocardiograms, cardiovascular stress tests, EKG monitoring, etc.). Imaging services include standard imaging such

Figure 4-1

MAJOR CATEGORIES IN THE INSTITUTIONAL SERVICES CLASSIFICATION SYSTEM

- Inpatient Hospital
  - Admissions
  - Days
  - Ancillary Services
    - Special Room
      - OR-Type Room
      - Emergency Room
      - Other Rooms
    - Laboratory
    - Radiology
    - Pharmacy/Blood
    - Supplies/Equipment/Ambulance
    - Therapies, Social/Psychological, Rehabilitation Services
    - Special Tests and Procedures
    - Anesthesia
    - Professional Services

- Outpatient Hospital
  - Special Room
    - OR-Type Room
    - Emergency Room
    - Clinic
    - Other Rooms
  - Laboratory
  - Radiology
  - Pharmacy/Blood
  - Supplies/Equipment/Ambulance
  - Therapies, Social/Psychological, Rehabilitation Services
  - Special Tests and Procedures
  - Anesthesia

- Nursing Home
  - Admissions
  - Days
  - Ancillary Services
    - Leave of Absence
    - Supplies/Equipment/Ambulance
    - Therapies and Social Services

- Home Health Agency
  - Therapy Visits
  - Skilled Nursing Visits
  - Social Service Visits
  - HHA Aide Visits
  - Oxygen Equipment and Supplies

Figure 4-2

MAJOR CATEGORIES FOR INPATIENT HOSPITAL CARE

- Admissions
  - Medical
    - Mental Disorder
    - Other
  - Surgical
  - Maternity

- Days
  - Medical
    - Mental Disorder
    - Other
  - Surgical
  - Maternity

- Ancillary Services
  - Medical
    - Mental Disorder
    - Other
  - Surgical
  - Maternity

Figure 4-3

MAJOR CATEGORIES IN THE NON-INSTITUTIONAL SERVICES CLASSIFICATION SYSTEM

- Evaluation and Management Services (Excluding Maternity)
  - Office Visits
  - Hospital Visits
  - Emergency Room Services
  - Nursing Home and Home Visits
  - Consultations
  - Specialty-Specific Services

- Procedures (Excluding Maternity)
  - Major Procedures
    - Cardiovascular
    - Orthopedic
    - Other
  - Ambulatory Procedures
    - Eye
    - Other
  - Minor Procedures
  - Oncology Services
  - Endoscopy Procedures
  - Dialysis Services

- Maternity Services
  - Global Fees
  - Evaluation and Management Services
  - Procedures
    - Major Procedures
    - Ambulatory Procedures
    - Other Procedures

- Imaging
  - Standard Imaging
  - Advanced Imaging
  - Sonography
  - Imaging/Procedure

- Tests
  - Lab Tests
  - Other Tests

- Other
  - Anesthesiology
  - Transportation
  - Supplies/Equipment
  - Oxygen and Supplies
  - Other

as X-rays and nuclear exams, advanced imaging such as CTs and MRIs, sonography such as electrocardiographs, and imaging associated with a specific procedure such as a heart catheter and angiogram.

Discussion is focused on unit fields, although allowed charges and paid charges are also presented in the tables. Allowed and paid charges in AHCCCS represent something different than they would in a fee-for-service Medicaid program. Allowed charges are assigned by the AHCCCS processing system and represent the amount that AHCCCS would allow for the encounter if it were a fee-for-service claim[34]; they are not related to the capitation payment or to the amount paid by the plan to its providers. Paid charges are also assigned by the AHCCCS data system. They equal the allowed charge minus third-party liability coverage, share of cost payments, and payment discounts or penalties.

Data Quality Issues

Although the reporting of encounter data in AHCCCS has been problematic, collection has improved dramatically since the beginning of the program[35] and has been relatively stable for the last several years. Our assessment is that while the data are without question not perfect, the encounter data magnitude and quantity are in general adequate to use to conduct a utilization analysis.

This assessment stems from our review of encounter data validation results for the time period leading up to and including the study period. AHCCCS has been conducting data validations of the participating acute care plans since the fourth year of the program (FY 86). These reviews focus on comparisons of encounter data with medical record information as well as comparisons of encounter data with other AHCCCS data. Specifically, AHCCCS compares office visit and surgery data in the encounter data files against medical record information. AHCCCS also compares maternity encounters to a sample of maternity hospitalizations reported to them through the Newborn Report System.

Both office visit/surgery and hospital acute encounter data have shown steady improvement leading up to the utilization analysis study period, according to the data validations conducted by AHCCCS. Between FY 89 and FY 91, the first year of the study period, office visit and surgery encounter data omission rates declined by 30% across all plans, with six plans demonstrating omission rate reductions ranging from 45% to 94%. Similar improvement is shown for acute hospital encounter data, with overall acute hospital encounter omission rates declining by 84% between FY 89 and FY 91. By the second year of the study period, FY 92, ten of twelve AHCCCS acute care plans had hospital omission rates of less than 5%.

Description of the Study Population

Table 4-2 shows the distribution of the study population by age, gender, ethnicity, eligibility group, and cash indicator in Arizona and New Mexico. As can be seen, a greater percentage of the Arizona group is younger and more likely to be of white ethnicity, to be eligible under SOBRA-related criteria, and to receive cash assistance as compared to the New Mexico group. The distribution by gender is approximately equal, 60% female and 40% male, across the states.

With respect to age, Arizona has more people in the 0-5 years age group (42% versus 40%) and fewer people in the 36-64 years age group (8% versus 11%) than New Mexico. With respect to ethnicity, Arizona has more blacks (9% versus 4%), more whites (45% versus 28%), fewer Hispanics (39% versus 51%) and fewer Native Americans (5% versus 11%) than New Mexico.

Beneficiaries eligible under AFDC-related eligibility criteria make up more than 60% of both groups, 64% in Arizona and 68% in New Mexico. Beneficiaries with eligibility based on SOBRA-related criteria make up 29% of the Arizona group and 20% of the New Mexico group. Those eligible under SSI-related criteria comprise 8% of the Arizona population but 12% of the New Mexico population. One reason for the smaller percentage of people in the SOBRA group in New Mexico is our decision to exclude an eligibility group of

Table 4-2

DISTRIBUTION OF ACUTE CARE STUDY POPULATION BY SELECTED DEMOGRAPHIC AND ELIGIBILITY CHARACTERISTICS AND STATE FOR FY 91 AND FY 92
(Weighted By Person-Years of Coverage)

	Arizona n=25,430	New Mexico n=13,604
AGE		
0- 5	41.95%	39.87%
6-18	30.63%	29.27%
19-35	19.16%	19.00%
36-64	7.73%	11.34%
65 plus	0.50%	0.49%
GENDER		
Missing		0.01%
Female	59.51%	58.37%
Male	40.48%	41.61%
ETHNICITY		
Missing	0.92%	1.76%
Other	1.78%	3.62%
Black	8.76%	4.09%
White	44.61%	28.20%
Hispanic	38.95%	51.07%
Native American	4.94%	11.23%
ELIGIBILITY GROUP		
AFDC	63.63%	68.15%
SSI	7.73%	12.14%
SOBRA Children	24.50%	18.92%
SOBRA Mothers	4.12%	0.76%
CASH INDICATOR		
No Cash Assistance	37.47%	26.46%
Cash Assistance	62.52%	73.53%

New Mexico pregnant women between 100-180% of the federal poverty level who have coverage only for pregnancy-related services. Cash assistance is more prevalent in New Mexico, where 74% of the person-years are for individuals receiving cash assistance as compared to 63% in Arizona.

Utilization Rates

Most of the emphasis in the discussion that follows is on the units of service and not the allowed or paid dollar fields, although dollar fields are occasionally referenced. Below we first present basic descriptive utilization data for each of the main types of services (institutional, non-institutional, drugs) by eligibility group. The second section examines summary utilization data by age, gender, ethnicity, and cash assistance indicator.

In examining the utilization rates presented below, it should be noted that Arizona was phasing in mental health coverage during our period of study. Full coverage was limited to individuals under 21 years of age.[36] Additionally, AHCCCS claims and encounter data for mental health services were underreported during this period.[37]

By Eligibility Group

Institutional Services

Table 4-3 shows the rates of institutional utilization per person-year by eligibility group and state. The SOBRA eligibility group is divided into SOBRA children and SOBRA mothers because of differences in the distribution of the children and mothers in the two states and the very different utilization rates of the children as compared to the mothers. As can be seen in the table, inpatient hospital days of care are greater in New Mexico than in Arizona for all categories of eligibility except SOBRA children. There are 65% more AFDC inpatient days per person-year and 144% more SSI inpatient days per person-year in New Mexico than in Arizona. SOBRA mothers in New Mexico

Table 4-3

INSTITUTIONAL UTILIZATION PER PERSON-YEAR BY TYPE OF SERVICE, ELIGIBILITY GROUP, AND STATE FOR FY91 AND FY92

	Arizona				New Mexico			
	Years				Years			
Person-Years								
All Eligibility Groups	25,430				13,604			
AFDC	16,181				9,272			
SSI	1,968				1,652			
SOBRA Children	6,232				2,575			
SOBRA Mothers	1,049				105			
	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
Inpatient Hospital								
All Inpatient Hospital Services								
All Eligibility Groups	0.787	0.240	707	703	1.315	0.229	747	749
AFDC	0.590	0.161	452	448	0.976	0.237	557	560
SSI	1.827	0.290	1,900	1,887	4.466	0.337	2,481	2,478
SOBRA Children	0.639	0.235	506	505	0.441	0.097	281	276
SOBRA Mothers	2.749	1.385	3,595	3,588	3.173	1.118	1,767	1,771
Mental								
All Eligibility Groups	0.127	0.005	33	33	0.487	0.015	210	214
AFDC	0.164	0.004	42	42	0.319	0.010	156	160
SSI	0.237	0.029	56	55	2.130	0.070	795	800
SOBRA Children	0.018	0.000	8	8	0.048	0.001	34	34
SOBRA Mothers	0.000	0.000	0	0	0.268	0.010	125	129
Medical								
All Eligibility Groups	0.214	0.057	190	189	0.350	0.063	225	224
AFDC	0.138	0.044	110	109	0.186	0.048	116	115
SSI	0.958	0.187	942	938	1.589	0.186	1,035	1,038
SOBRA Children	0.207	0.057	187	187	0.158	0.040	105	103
SOBRA Mothers	0.038	0.022	28	28	0.076	0.029	86	86
Surgical								
All Eligibility Groups	0.100	0.015	167	166	0.165	0.022	149	147
AFDC	0.063	0.014	107	106	0.083	0.017	81	81
SSI	0.609	0.063	880	873	0.714	0.070	634	623
SOBRA Children	0.042	0.005	117	117	0.113	0.010	88	85
SOBRA Mothers	0.051	0.012	55	55	0.029	0.019	46	46
Maternity								
All Eligibility Groups	0.345	0.163	317	315	0.313	0.129	163	163
AFDC	0.224	0.100	193	192	0.388	0.162	204	204
SSI	0.022	0.012	22	21	0.033	0.011	18	18
SOBRA Children	0.372	0.173	194	192	0.122	0.046	54	53
SOBRA Mothers	2.659	1.351	3,512	3,505	2.800	1.061	1,510	1,510
	Claims		Allowed	Paid	Claims		Allowed	Paid
Outpatient								
All Eligibility Groups	0.815		216	215	1.930		223	222
AFDC	0.765		180	180	1.762		194	193
SSI	2.022		558	554	3.121		503	501
SOBRA Children	0.557		111	110	1.626		135	133
SOBRA Mothers	0.844		747	742	5.505		545	546
	Lines		Allowed	Paid	Lines		Allowed	Paid
Home Health								
All Eligibility Groups	0.000		0	0	0.030		14	14
AFDC	0.000		0	0	0.017		6	6
SSI	0.004		1	1	0.134		79	79
SOBRA Children	0.000		0	0	0.009		3	3
SOBRA Mothers	0.002		0	0	0.096		31	31
	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
Nursing Home								
All Eligibility Groups	0.027	0.002	2	9	0.002	0.000	0	0
AFDC	0.003	0.000	0	0	0.000	0.000	0	0
SSI	0.290	0.019	24	114	0.016	0.001	1	1
SOBRA Children	0.000	0.000	0	0	0.000	0.000	0	0
SOBRA Mothers	0.068	0.003	9	9	0.000	0.000	0	0

have a rate of inpatient days that is 15% greater than that of SOBRA mothers in Arizona. However, SOBRA children spend 31% fewer days per person-year in the hospital in New Mexico than in Arizona.

Of the days hospitalized, a smaller percentage are for maternity care in New Mexico than in Arizona. In Arizona, 44% of the days hospitalized are for maternity diagnoses, whereas in New Mexico the corresponding rate is 24%. Although the percentage of days hospitalized for maternity care for AFDC beneficiaries is almost identical in the two states (38% in Arizona, 40% in New Mexico), for SOBRA mothers, maternity days as a percentage of total inpatient days is 97% in Arizona and 88% in New Mexico.

Days of hospital care for mental conditions are considerably larger in New Mexico than in Arizona, 0.49 per person-year as compared to 0.13. The largest difference is found for the SSI eligibility group, for which the rate in New Mexico is 2.13 days per person-year and in Arizona is 0.24 days per person-year. Medical days and surgical days are also generally larger in New Mexico than in Arizona, except for the use of medical days by SOBRA children and surgical days by SOBRA mothers.

Across all eligibility groups, the number of outpatient hospital claims is consistently larger in New Mexico than in Arizona. This difference is most pronounced for SOBRA mothers, for whom New Mexico has 5.5 claims per person-year and Arizona has 0.8 claims per person-year. New Mexico has 130% more outpatient claims per AFDC person-year, 54% more claims per SSI person-year, and 192% more claims per SOBRA child person-year than Arizona.

The rate of emergency room use per person-year is similar in the two states, 0.49 lines in Arizona and 0.47 lines in New Mexico (not shown). With the exception of SOBRA mothers, Arizona beneficiaries have slightly more emergency room use than those in New Mexico (0.48 versus 0.46 lines per AFDC person-year, 0.61 versus 0.55 lines per SSI person-year, 0.48 versus 0.44 lines per SOBRA child person-year, and 0.44 versus 0.68 lines per SOBRA mother person-year).

As shown in the bottom part of the table, acute care beneficiaries' use of other institutional services is very limited. They have little home health or nursing home utilization.

Non-Institutional Services

Non-institutional service use is shown in Table 4-4. Utilization measures (units, allowed dollars, and paid dollars) are broken down for particular kinds of non-institutional services by eligibility group. Total use of evaluation and management services is the same in the two states (5.9 per person-year). SSI beneficiaries, SOBRA mothers, and SOBRA children have slightly larger rates of use in Arizona than in New Mexico, while Arizona AFDC beneficiaries have slightly smaller rates of use.

When evaluation and management service units are examined by type, the distribution in the two states is also similar. In both states, office visits are most common, followed by specialty-specific services, hospital visits, and emergency room services. There is very little use of consultations and nursing home and home visits in either state.

AFDC and SSI beneficiaries both have smaller rates of procedure use in Arizona than in New Mexico. AFDC beneficiaries have 0.9 procedures per person-year in Arizona and 1.2 procedures per person-year in New Mexico. SSI beneficiaries have 1.3 procedures per person-year in Arizona and 2.7 procedures per person-year in New Mexico. However, SOBRA beneficiaries have larger procedure use rates in Arizona than in New Mexico. This is true both for the mothers and the children. The mothers have 1.9 procedures per person-year in Arizona and 1.3 procedures per person-year in New Mexico. The children have 1.6 procedures per person-year in Arizona and 1.2 procedures per person-year in New Mexico.

Units of service problems often make analysis of utilization rates for maternity services problematic, especially because maternity care under

Table 4-4

NON-INSTITUTIONAL UTILIZATION PER PERSON-YEAR BY TYPE OF SERVICE, ELIGIBILITY GROUP, AND STATE FOR FY91 AND FY92

	----------Arizona----------			---------New Mexico--------		
	Years			Years		
Person-Years						
All Eligibility Groups	25,430			13,604		
AFDC	16,181			9,272		
SSI	1,968			1,652		
SO8RA Children	6,232			2,575		
SO8RA Mothers	1,049			105		
	Units	Allowed	Paid	Units	Allowed	Paid
Evaluation & Management Services						
All Evaluation ° Management Services						
All Eligibility Groups	5.895	209	189	5.917	157	163
AFOC	5.302	187	169	5.532	147	153
SSI	11.762	400	363	9.322	260	270
SO8RA Children	5.511	198	190	5.135	125	129
SO8RA Mothers	6.320	248	183	5.496	169	175
Office Visits						
All Eligibility Groups	3.196	104	92	3.654	84	88
AFOC	2.901	95	83	3.481	80	84
SSI	4.067	135	128	4.233	92	96
SOBRA Children	3.500	110	104	3.944	91	95
SOBRA Mothers	4.303	139	80	2.695	66	68
Hospital Visits						
All Eligibility Groups	0.585	31	30	0.801	26	27
AFDC	0.342	18	18	0.658	23	24
SSI	1.700	83	81	2.183	61	63
SOBRA Children	0.844	45	45	0.409	15	15
SO8RA Mothers	0.712	39	35	1.357	47	49
Emergency Room Services						
All Eligibility Groups	0.464	22	22	0.480	12	12
AFDC	0.458	22	21	0.474	11	12
SSI	0.611	36	35	0.581	16	17
SOBRA Children	0.447	20	19	0.425	11	11
SOBRA Mothers	0.393	22	22	0.717	19	20
Nursing Home and Home Visits						
All Eligibility Groups	0.035	2	2	0.003	0	0
AFOC	0.021	1	1	0.000	0	0
SSI	0.172	7	7	0.021	1	1
SO8RA Children	0.015	1	1	0.000	0	0
SO8RA Mothers	0.104	4	4	0.000	0	0
Consultations						
All Eligibility Groups	0.141	12	12	0.103	4	5
AFOC	0.118	10	9	0.074	3	3
SSI	0.415	39	38	0.283	14	14
SO8RA Children	0.093	7	7	0.089	2	2
SO8RA Mothers	0.264	25	25	0.162	7	7
Specialty-Specific Services						
All Eligibility Groups	1.474	39	33	0.877	30	31
AFOC	1.462	42	36	0.846	28	29
SSI	4.796	100	74	2.021	77	80
SO8RA Children	0.613	15	14	0.268	6	6
SO8RA Mothers	0.545	19	17	0.564	29	30
Procedures						
All Eligibility Groups	1.163	173	170	1.403	89	93
AFDC	0.937	121	117	1.233	84	88
SSI	1.325	267	235	2.657	171	176
SO8RA Children	1.575	61	57	1.216	48	49
SOBRA Mothers	1.887	1,467	1,535	1.271	325	338

Table 4-4 (Concluded)

NON-INSTITUTIONAL UTILIZATION PER PERSON-YEAR BY TYPE OF SERVICE, ELIGIBILITY GROUP, AND STATE FOR FY91 AND FY92

	Arizona			New Mexico		
	Units	Allowed	Paid	Units	Allowed	Paid
Maternity Services						
All Eligibility Groups	0.107	79	69	0.104	18	19
AFDC	0.061	40	35	0.122	21	22
SSI	0.013	9	7	0.039	6	6
SOBRA Children	0.000	0	0	0.000	0	0
SOBRA Mothers	1.623	1,282	1,113	2.111	430	447
Tests						
All Eligibility Groups	2.604	33	27	2.063	24	25
AFDC	2.176	27	22	1.879	21	22
SSI	5.320	78	63	4.469	56	58
SOBRA Children	1.125	13	11	0.843	10	10
SOBRA Mothers	12.884	143	124	10.361	116	120
Imaging						
All Eligibility Groups	0.664	32	28	0.804	30	31
AFDC	0.567	25	21	0.693	24	25
SSI	1.756	101	84	2.008	89	91
SOBRA Children	0.374	11	10	0.361	10	10
SOBRA Mothers	1.826	144	136	2.542	105	110

traditional fee-for-service reimbursement is regularly billed as a global fee. During our study period, more global fees were billed in New Mexico than in Arizona for both AFDC beneficiaries (69 per 1,000 person-years versus 32 per 1,000 person-years) and SOBRA mothers (1,021 per 1,000 person-years versus 982 per 1,000 person-years). The maternity rates shown in Table 4-4 combine maternity evaluation and management services, maternity procedures, and maternity global fees. Overall rates of use are similar across the states, but the paid amounts in Arizona are much larger. This suggests differences in coding maternity outpatient services in the two states. Accurate rates of maternity care can probably best be determined through the use of the hospital inpatient data broken out by type of diagnoses (see Table 4-3).

The amount of test usage is larger in Arizona than in New Mexico for all eligibility categories. SOBRA mothers report the largest use of tests, 12.9 per person-year in Arizona and 10.4 per person-year in New Mexico. The number of tests per person-year for AFDC beneficiaries in Arizona is 2.2 tests, as compared to 1.9 tests in New Mexico. SSI beneficiaries average 5.3 tests in Arizona and 4.5 tests in New Mexico. SOBRA children have 1.1 tests per person-year in Arizona and 0.8 tests per person-year in New Mexico.

Per person-year units of imaging are the same in Arizona and New Mexico for SOBRA children, about 0.4 images. For SOBRA mothers, the per person-year rate is larger in New Mexico than in Arizona, 2.5 images versus 1.8. For AFDC beneficiaries, the rate is 0.6 images per person-year in Arizona and 0.7 images per person-year in New Mexico. For SSI beneficiaries, the rate is 1.8 images per person-year in Arizona and 2.0 images per person-year in New Mexico.

By Demographic Characteristics

Next, we examine summary utilization rates by selected demographic characteristics. These characteristics are age, gender, enthnicity, and cash assistance indicator.

Age

Tables 4-5 through 4-9 show the major utilization measures for each of the five age groups: 0-5 years (Table 4-5), 6-18 years (Table 4-6), 19-35 years (Table 4-7), 36-64 years (Table 4-8) and 65 years and older (Table 4-9).

As can be seen in the tables, utilization varies by age. It is generally largest for the older age groups (36 to 64 years, 65 years and older) and smallest for those aged 6 to 18 years. Note the rates of inpatient hospital utilization below for beneficiaries in the two states:

Age Group	Arizona	New Mexico
0-5	0.7	0.9
6-18	0.6	1.6
19-35	1.0	1.3
36-64	1.5	1.8
65+	2.1	2.1

Evaluation and management services exhibit the following rates:

Age Group	Arizona	New Mexico
0-5	5.7	6.4
6-18	6.3	4.5
19-35	4.9	5.8
36-64	7.3	8.0
65+	9.3	6.9

Gender

Tables 4-10 and 4-11 show the major utilization measures for males (Table 4-10) and females (Table 4-11). Males use more inpatient hospital services and evaluation and management services than females. This is true for all the eligibility groups for which there is both male and female

Table 4-5

UTILIZATION PER PERSON-YEAR FOR THOSE IN THE 0-5 AGE GROUP BY TYPE OF SERVICE, ELIGIBILITY GROUP, AND STATE FOR FY91 AND FY92

	Arizona				New Mexico			
	Years				Years			
Person-Years								
All Eligibility Groups	10,669				5,419			
AFDC	5,396				3,045			
SSI	63				84			
SOBRA Children	5,210				2,290			
	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
Inpatient								
All Eligibility Groups	0.713	0.247	567	564	0.942	0.276	544	540
AFDC	0.658	0.217	526	522	1.197	0.400	641	639
SSI	1.638	0.286	1,330	1,330	4.280	0.429	3,600	3,508
SOBRA Children	0.757	0.277	599	597	0.479	0.106	303	298
	Claims		Allowed	Paid	Claims		Allowed	Paid
Outpatient								
All Eligibility Groups	0.783		127	127	1.841		151	150
AFDC	0.938		135	135	1.899		151	151
SSI	1.335		216	216	3.672		474	466
SOBRA Children	0.616		118	117	1.697		140	139
	Units		Allowed	Paid	Units		Allowed	Paid
Evaluation & Management Services								
All Eligibility Groups	5.709		208	195	6.399		167	174
AFDC	5.597		202	184	6.961		190	198
SSI	9.666		364	359	10.581		283	291
SOBRA Children	5.777		213	204	5.498		134	138
	Units		Allowed	Paid	Units		Allowed	Paid
Procedures								
All Eligibility Groups	1.739		63	59	1.729		62	65
AFDC	1.663		58	54	1.993		68	71
SSI	1.733		154	146	3.291		176	178
SOBRA Children	1.818		67	62	1.321		50	51
	Units		Allowed	Paid	Units		Allowed	Paid
Maternity Services								
All Eligibility Groups	0.000		0	0	0.000		0	0
AFDC	0.000		0	0	0.000		0	0
SSI	0.000		0	0	0.000		0	0
SOBRA Children	0.000		0	0	0.000		0	0
	Units		Allowed	Paid	Units		Allowed	Paid
Tests								
All Eligibility Groups	1.152		14	11	1.167		12	13
AFDC	1.101		13	10	1.308		13	13
SSI	2.655		37	33	3.887		50	53
SOBRA Children	1.187		14	11	0.879		10	11
	Units		Allowed	Paid	Units		Allowed	Paid
Imaging								
All Eligibility Groups	0.416		13	11	0.459		13	14
AFDC	0.419		14	11	0.474		14	15
SSI	1.017		49	48	2.158		79	81
SOBRA Children	0.406		12	11	0.378		10	10

Table 4-6

UTILIZATION PER PERSON-YEAR FOR THOSE IN THE 6-18 AGE GROUP BY
TYPE OF SERVICE, ELIGIBILITY GROUP, AND STATE FOR FY91 AND FY92

	Arizona				New Mexico			
	Years				Years			
Person-Years								
All Eligibility Groups	7,791				3,982			
AFDC	6,326				3,429			
SSI	246				246			
SOBRA Children	1,022				278			
SOBRA Mothers	197				29			
	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
Inpatient								
All Eligibility Groups	0.551	0.084	268	266	1.624	0.085	758	769
AFDC	0.522	0.051	209	207	0.887	0.066	458	470
SSI	1.615	0.106	573	573	13.364	0.297	5,561	5,563
SOBRA Children	0.034	0.021	33	33	0.136	0.029	101	101
SOBRA Mothers	2.801	1.431	3,014	2,998	3.554	1.001	1,890	1,889
	Claims		Allowed	Paid	Claims		Allowed	Paid
Oupatient								
All Eligibility Groups	0.413		114	113	1.162		144	143
AFDC	0.408		88	88	1.042		126	126
SSI	0.923		110	108	2.400		409	401
SOBRA Children	0.258		74	74	1.077		93	91
SOBRA Mothers	0.741		1,137	1,135	5.624		479	480
	Units		Allowed	Paid	Units		Allowed	Paid
Evaluation & Management Services								
All Eligibility Groups	6.349		185	162	4.536		119	124
AFDC	5.449		169	152	4.253		109	114
SSI	37.822		778	573	10.923		331	340
SOBRA Children	4.155		125	118	2.266		54	56
SOBRA Mothers	7.348		268	201	5.590		171	178
	Units		Allowed	Paid	Units		Allowed	Paid
Procedures								
All Eligibility Groups	0.390		93	92	0.432		35	36
AFDC	0.352		57	54	0.362		30	31
SSI	0.423		95	93	1.318		77	79
SOBRA Children	0.336		31	31	0.377		31	32
SOBRA Mothers	1.832		1,560	1,630	1.794		321	329
	Units		Allowed	Paid	Units		Allowed	Paid
Maternity Services								
All Eligibility Groups	0.053		32	27	0.080		13	13
AFDC	0.016		8	7	0.073		10	10
SSI	0.016		12	12	0.016		7	8
SOBRA Children	0.000		0	0	0.000		0	0
SOBRA Mothers	1.573		981	833	2.208		494	515
	Units		Allowed	Paid	Units		Allowed	Paid
Tests								
All Eligibility Groups	1.441		18	14	1.118		13	14
AFDC	1.178		15	12	1.030		12	12
SSI	1.745		26	22	1.753		24	25
SOBRA Children	0.811		10	8	0.567		7	7
SOBRA Mothers	12.753		140	121	11.455		124	128
	Units		Allowed	Paid	Units		Allowed	Paid
Imaging								
All Eligibility Groups	0.388		16	14	0.459		15	15
AFDC	0.359		13	11	0.432		12	12
SSI	0.537		32	23	0.907		61	57
SOBRA Children	0.209		5	5	0.233		7	8
SOBRA Mothers	2.035		160	147	2.070		80	84

Table 4-7

UTILIZATION PER PERSON-YEAR FOR THOSE IN THE 19-35 AGE GROUP BY TYPE OF SERVICE, ELIGIBILITY GROUP, AND STATE FOR FY91 AND FY92

	----------------Arizona---------------				----------------New Mexico------------			
	Years				Years			
Person-Years								
All Eligibility Groups	4,873				2,586			
AFDC	3,554				2,098			
SSI	516				413			
SOBRA Mothers	804				74			
	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
Inpatient								
All Eligibility Groups	0.989	0.450	1,220	1,214	1.297	0.331	830	830
AFDC	0.624	0.271	752	746	0.842	0.298	563	563
SSI	0.937	0.215	810	806	3.306	0.351	2,035	2,034
SOBRA Mothers	2.641	1.390	3,555	3,550	2.954	1.146	1,662	1,667
	Claims		Allowed	Paid	Claims		Allowed	Paid
Outpatient								
All Eligibility Groups	1.066		398	395	2.727		359	359
AFDC	1.040		357	355	2.537		316	316
SSI	1.530		343	341	3.195		539	540
SOBRA Mothers	0.885		613	608	5.517		569	570
	Units		Allowed	Paid	Units		Allowed	Paid
Evaluation & Management Services								
All Eligibility Groups	4.915		203	173	5.802		155	162
AFDC	4.618		191	167	5.356		140	146
SSI	5.052		222	213	8.125		234	242
SOBRA Mothers	6.140		244	176	5.490		169	175
	Units		Allowed	Paid	Units		Allowed	Paid
Procedures								
All Eligibility Groups	1.045		474	480	1.540		172	180
AFDC	0.885		298	294	1.394		178	186
SSI	0.838		168	137	2.368		116	119
SOBRA Mothers	1.885		1,452	1,523	1.066		320	334
	Units		Allowed	Paid	Units		Allowed	Paid
Maternity Services								
All Eligibility Groups	0.447		344	300	0.406		72	75
AFDC	0.237		163	143	0.397		71	74
SSI	0.037		22	17	0.148		20	21
SOBRA Mothers	1.640		1,352	1,177	2.103		407	423
	Units		Allowed	Paid	Units		Allowed	Paid
Tests								
All Eligibility Groups	6.174		75	63	3.805		43	44
AFDC	4.956		62	51	3.537		38	40
SSI	3.714		55	44	4.088		52	54
SOBRA Mothers	13.139		145	125	9.819		112	115
	Units		Allowed	Paid	Units		Allowed	Paid
Imaging								
All Eligibility Groups	1.127		68	60	1.247		48	50
AFDC	0.987		54	45	1.174		45	47
SSI	1.071		54	50	1.357		50	50
SOBRA Mothers	1.783		141	134	2.698		114	119

Table 4-8

UTILIZATION PER PERSON-YEAR FOR THOSE IN THE 36-64 AGE GROUP BY TYPE OF SERVICE, ELIGIBILITY GROUP, AND STATE FOR FY91 AND FY92

	Arizona				New Mexico			
	Years				Years			
Person-Years								
All Eligibility Groups	1,968				1,544			
AFDC	904				699			
SSI	1,015				843			
SOBRA Mothers	49				2			
	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
Inpatient								
All Eligibility Groups	1.533	0.292	1,783	1,771	1.833	0.265	1,279	1,281
AFDC	0.511	0.159	528	527	0.854	0.174	656	651
SSI	2.311	0.370	2,670	2,648	2.638	0.337	1,790	1,798
SOBRA Mothers	4.327	1.113	6,609	6,609	6.645	1.994	4,606	4,606
	Claims		Allowed	Paid	Claims		Allowed	Paid
Outpatient								
All Eligibility Groups	1.880		631	628	2.902		448	447
AFDC	1.158		401	399	2.377		346	346
SSI	2.584		801	796	3.338		533	530
SOBRA Mothers	0.598		1,381	1,374	2.658		633	633
	Units		Allowed	Paid	Units		Allowed	Paid
Evaluation & Management Services								
All Eligibility Groups	7.312		311	298	7.963		216	226
AFDC	5.198		212	201	6.118		167	175
SSI	9.300		402	388	9.502		257	268
SOBRA Mothers	5.131		231	217	3.987		97	100
	Units		Allowed	Paid	Units		Allowed	Paid
Procedures								
All Eligibility Groups	1.373		315	288	2.553		180	186
AFDC	0.909		251	231	1.717		134	140
SSI	1.750		323	288	3.249		217	224
SOBRA Mothers	2.143		1,336	1,353	1.329		650	689
Maternity Services	Units		Allowed	Paid	Units		Allowed	Paid
All Eligibility Groups	0.066		47	42	0.030		7	7
AFDC	0.057		27	24	0.066		15	14
SSI	0.003		4	2	0.000		0	0
SOBRA Mothers	1.545		1,341	1,201	0.665		338	338
	Units		Allowed	Paid	Units		Allowed	Paid
Tests								
All Eligibility Groups	5.959		86	69	4.625		58	60
AFDC	4.653		66	53	3.553		45	47
SSI	6.969		103	82	5.494		68	70
SOBRA Mothers	9.190		122	107	15.949		174	183
	Units		Allowed	Paid	Units		Allowed	Paid
Imaging								
All Eligibility Groups	1.837		104	88	2.120		91	95
AFDC	1.254		63	58	1.490		59	62
SSI	2.363		140	114	2.639		117	122
SOBRA Mothers	1.690		134	126	3.987		160	166

Table 4-9

UTILIZATION PER PERSON-YEAR FOR THOSE IN THE 65+ AGE GROUP BY TYPE OF SERVICE, ELIGIBILITY GROUP, AND STATE FOR FY91 AND FY92

	Arizona				New Mexico			
	Years				Years			
Person-Years								
All Eligibility Groups	129				68			
AFDC	0				2			
SSI	128				66			
	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
Inpatient								
All Eligibility Groups	2.065	0.303	3,004	2,988	2.141	0.281	1,176	1,135
AFDC	0.000	0.000	0	0	0.000	0.000	0	0
SSI	2.072	0.304	3,014	2,998	2.189	0.287	1,202	1,161
	Claims		Allowed	Paid	Claims		Allowed	Paid
Outpatient								
All Eligibility Groups	1.980		533	522	1.831		279	280
AFDC	0.000		0	0	0.000		0	0
SSI	1.986		534	523	1.872		285	286
	Units		Allowed	Paid	Units		Allowed	Paid
Evaluation & Management Services								
All Eligibility Groups	9.279		387	374	6.865		175	183
AFDC	2.421		83	83	1.997		67	71
SSI	9.301		388	375	6.975		177	185
	Units		Allowed	Paid	Units		Allowed	Paid
Procedures								
All Eligibility Groups	1.452		599	519	1.078		265	276
AFDC	0.000		0	0	0.000		0	0
SSI	1.457		600	521	1.102		271	282
	Units		Allowed	Paid	Units		Allowed	Paid
Maternity Services								
All Eligibility Groups	0.000		0	0	0.000		0	0
AFDC	0.000		0	0	0.000		0	0
SSI	0.000		0	0	0.000		0	0
	Units		Allowed	Paid	Units		Allowed	Paid
Tests								
All Eligibility Groups	6.856		96	79	4.547		54	56
AFDC	0.000		0	0	1.332		16	17
SSI	6.878		97	79	4.620		55	57
	Units		Allowed	Paid	Units		Allowed	Paid
Imaging								
All Eligibility Groups	2.399		146	122	1.904		78	82
AFDC	0.000		0	0	0.000		0	0
SSI	2.407		146	122	1.948		80	84

Table 4-10

INSTITUTIONAL UTILIZATION PER PERSON-YEAR FOR MALES BY TYPE OF SERVICE, ELIGIBILITY GROUP, AND STATE FOR FY91 AND FY92

	-------------Arizona---------------				-------------New Mexico------------			
	Years				Years			
Person-Years								
All Eligibility Groups	10,294				5,661			
AFDC	6,235				3,542			
SSI	819				793			
SOBRA Children	3,241				1,326			
	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
Inpatient								
Total	0.901	0.175	692	689	1.601	0.187	858	863
AFDC	0.788	0.127	494	491	1.059	0.196	578	585
SSI	2.367	0.293	2,201	2,199	5.712	0.281	2,907	2,910
SOBRA Children	0.750	0.239	692	689	0.587	0.105	382	380
	Claims		Allowed	Paid	Claims		Allowed	Paid
Outpatient								
Total	0.692		151	150	1.658		191	169
AFDC	0.683		129	129	1.440		151	149
SSI	1.376		488	486	2.659		452	447
SOBRA Children	0.537		108	107	1.640		143	142
	Units		Allowed	Paid	Units		Allowed	Paid
Evaluation & Management								
Total	6.949		225	206	5.979		153	160
AFDC	6.263		203	186	5.766		146	153
SSI	15.802		423	357	8.025		226	234
SOBRA Children	6.032		218	207	5.325		129	134
	Units		Allowed	Paid	Units		Allowed	Paid
Procedures								
Total	1.226		84	76	1.514		71	73
AFDC	1.014		72	66	1.301		58	61
SSI	1.207		214	180	2.722		152	156
SOBRA Children	1.637		73	70	1.361		56	58
	Units		Allowed	Paid	Units		Allowed	Paid
Maternity								
Total	0.000		0	0	0.000		0	0
AFDC	0.000		0	0	0.000		0	0
SSI	0.000		0	0	0.000		0	0
SOBRA Children	0.000		0	0	0.000		0	0
	Units		Allowed	Paid	Units		Allowed	Paid
Tests								
Total	1.294		18	14	1.178		15	16
AFDC	1.071		15	12	0.868		11	12
SSI	3.896		60	46	3.221		43	45
SOBRA Children	1.065		13	10	0.784		10	10
	Units		Allowed	Paid	Units		Allowed	Paid
Imaging								
Total	0.529		19	17	0.659		22	22
AFDC	0.471		17	14	0.537		15	16
SSI	1.382		67	60	1.612		70	70
SOBRA Children	0.423		12	11	0.413		11	11

Table 4-11

INSTITUTIONAL UTILIZATION PER PERSON-YEAR FOR FEMALES BY TYPE OF SERVICE, ELIGIBILITY GROUP, AND STATE FOR FY 91 AND FY92

	-------------Arizona---------------				-------------New Mexico-----------			
	Years				Years			
Person-Years								
Total	15,135				7,941			
AFDC	9,946				5,729			
SSI	1,149				859			
SOBRA Children	2,991				1,249			
SOBRA Mothers	1,049				105			
	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
Inpatient								
Total	0.708	0.283	717	712	1.112	0.260	668	668
AFDC	0.465	0.182	426	422	0.924	0.262	544	545
SSI	1.442	0.287	1,686	1,664	3.316	0.389	2,087	2,080
SOBRA Children	0.519	0.230	305	305	0.287	0.089	173	166
SOBRA Mothers	2.749	1.385	3,595	3,588	3.173	1.118	1,767	1,771
	Claims		Allowed	Paid	Claims		Allowed	Paid
Outpatient								
Total	0.898		260	259	2.125		245	246
AFDC	0.817		213	211	1.961		220	221
SSI	2.482		609	603	3.547		551	550
SOBRA Children	0.579		114	114	1.611		125	124
SOBRA Mothers	0.844		747	742	5.505		545	546
	Units		Allowed	Paid	Units		Allowed	Paid
Evaluation & Management								
Total	5.178		198	178	5.874		159	166
AFDC	4.699		178	158	5.389		147	154
SSI	8.881		383	368	10.520		292	303
SOBRA Children	4.947		177	171	4.932		120	124
SOBRA Mothers	6.320		248	183	5.496		169	175
	Units		Allowed	Paid	Units		Allowed	Paid
Procedures								
Total	1.120		234	233	1.324		103	107
AFDC	0.889		152	148	1.191		100	104
SSI	1.409		305	274	2.597		188	195
SOBRA Children	1.508		47	43	1.061		39	40
SOBRA Mothers	1.887		1,467	1,535	1.271		325	338
	Units		Allowed	Paid	Units		Allowed	Paid
Maternity								
Total	0.180		133	116	0.178		31	32
AFDC	0.100		66	58	0.197		34	35
SSI	0.023		16	12	0.076		12	12
SOBRA Children	0.000		0	0	0.000		0	0
SOBRA Mothers	1.623		1,282	1,113	2.111		430	447
	Units		Allowed	Paid	Units		Allowed	Paid
Tests								
Total	3.495		43	35	2.694		30	31
AFDC	2.869		35	29	2.505		27	28
SSI	6.335		92	75	5.621		68	70
SOBRA Children	1.191		14	11	0.906		10	11
SOBRA Mothers	12.884		143	124	10.361		116	120
	Units		Allowed	Paid	Units		Allowed	Paid
Imaging								
Total	0.755		41	36	0.908		35	36
AFDC	0.627		30	26	0.790		29	30
SSI	2.023		126	102	2.374		107	110
SOBRA Children	0.320		10	9	0.306		8	9
SOBRA Mothers	1.826		144	136	2.542		105	110

representation: AFDC, SSI and SOBRA children. Overall, the number of inpatient days for males is 27% greater than for females in Arizona and 44% greater than for females in New Mexico. Males also have larger rates per person-year for evaluation and management services, especially in Arizona [6.9 (male) versus 5.2 (female)].

Ethnicity

Tables 4-12 through 4-17 present summary data for each of the six ethnicity groups: ethnicity unknown (Table 4-12), ethnicity other (Table 4-13), blacks (Table 4-14), whites (Table 4-15), Hispanics (Table 4-16), and Native Americans (Table 4-17). Review of data on inpatient hospital days and evaluation and management services by the four identified groups indicates that whites are the largest service users. This group consumes 0.93 hospital days per person-year in Arizona and 2.17 days per person-year in New Mexico. With respect to evaluation and management services, whites also have the largest rates, 7.5 visits per person-year in Arizona and 8.2 visits per person-year in New Mexico. In Arizona, blacks appear to be the next largest group of service users. In New Mexico, Hispanics tend to use more services than blacks. Native Americans are generally the smallest utilizers of services, with 0.54 days of inpatient care per person-year in Arizona, 2.6 evaluation and management services per person-year in Arizona, and 2.7 evaluation and management services per person-year in New Mexico. The rate of inpatient hospital days of care for Native Americans in New Mexico (0.93), however, is greater than that for both blacks and Hispanics.

Cash Indicator

Tables 4-18 and 4-19 present summary utilization measures for beneficiaries who receive cash assistance (Table 4-19) and those who do not (Table 4-18). Cash beneficiaries generally use less inpatient services and evaluation and management services than those not receiving cash payments. The rate of inpatient days for cash beneficiaries is 44% less in Arizona and 20% less in New Mexico than for beneficiaries not receiving cash. For

Table 4-12

INSTITUTIONAL UTILIZATION PER PERSON-YEAR FOR ETHNICITY UNKNOWN BY TYPE OF SERVICE, ELIGIBILITY GROUP, AND STATE FOR FY91 AND FY92

	Arizona				New Mexico			
	Years				Years			
Person-Years								
Total	236				240			
AFDC	11				71			
SSI	221				132			
SOBRA Children	2				36			
SOBRA Mothers	1				1			
	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
Inpatient								
Total	1.501	0.280	1,486	1,483	1.174	0.237	814	801
AFDC	2.212	0.354	2,272	2,272	0.787	0.267	333	327
SSI	1.431	0.257	1,439	1,435	1.503	0.227	1,080	1,060
SOBRA Children	3.416	1.464	653	653	0.614	0.167	735	735
SOBRA Mothers	4.847	1.939	4,734	4,734	7.459	2.984	3,441	3,441
	Claims		Allowed	Paid	Claims		Allowed	Paid
Outpatient								
Total	2.692		1,028	1,026	2.524		313	309
AFDC	0.265		168	168	2.304		189	189
SSI	2.790		1,084	1,081	2.591		406	399
SOBRA Children	5.856		252	252	2.482		199	198
SOBRA Mothers	1.939		129	129	14.918		1,210	1,210
	Units		Allowed	Paid	Units		Allowed	Paid
Evaluation & Management								
Total	7.542		326	307	4.671		121	125
AFDC	7.788		404	325	1.629		47	48
SSI	7.526		324	309	7.240		185	191
SOBRA Children	7.320		197	131	1.255		34	35
SOBRA Mothers	8.725		335	148	2.984		66	68
	Units		Allowed	Paid	Units		Allowed	Paid
Procedures								
Total	1.446		218	139	1.624		89	91
AFDC	0.708		24	24	0.365		10	10
SSI	1.476		217	133	2.704		149	152
SOBRA Children	1.952		23	10	0.167		29	31
SOBRA Mothers	1.939		2,947	2,947	0.000		0	0
	Units		Allowed	Paid	Units		Allowed	Paid
Maternity								
Total	0.004		7	3	0.004		2	2
AFDC	0.000		0	0	0.000		0	0
SSI	0.000		0	0	0.000		0	0
SOBRA Children	0.000		0	0	0.000		0	0
SOBRA Mothers	0.969		1,551	582	1.492		761	804
	Units		Allowed	Paid	Units		Allowed	Paid
Tests								
Total	6.546		93	76	2.903		34	36
AFDC	3.540		69	43	0.126		1	1
SSI	6.682		95	78	5.121		60	62
SOBRA Children	2.928		26	14	0.279		7	7
SOBRA Mothers	17.451		147	135	0.000		0	0
	Units		Allowed	Paid	Units		Allowed	Paid
Imaging								
Total	1.908		94	78	1.199		53	55
AFDC	0.973		37	28	0.183		7	7
SSI	1.959		98	80	1.979		91	94
SOBRA Children	0.488		7	7	0.335		4	4
SOBRA Mothers	3.878		169	169	1.492		60	60

Table 4-13

INSTITUTIONAL UTILIZATION PER PERSON-YEAR FOR ETHNICITY OTHER BY TYPE OF SERVICE, ELIGIBILITY GROUP, AND STATE FOR FY91 AND FY92

	Arizona				New Mexico			
	Years				Years			
Person-Years								
Total	454				493			
AFDC	173				212			
SSI	149				216			
SOBRA Children	102				62			
SOBRA Mothers	30				4			
	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
Inpatient								
Total	0.771	0.273	966	951	2.578	0.255	1,449	1,474
AFDC	0.612	0.179	376	341	0.780	0.255	368	368
SSI	0.470	0.134	1,433	1,427	4.787	0.245	2,788	2,845
SOBRA Children	1.006	0.293	886	885	0.469	0.210	356	356
SOBRA Mothers	2.387	1.446	2,335	2,335	11.464	1.600	3,266	3,266
	Claims		Allowed	Paid	Claims		Allowed	Paid
Outpatient								
Total	0.892		211	210	3.288		443	441
AFDC	0.618		117	116	2.958		269	269
SSI	1.612		337	334	3.413		644	641
SOBRA Children	0.420		76	76	3.594		302	302
SOBRA Mothers	0.504		599	592	9.597		934	934
	Units		Allowed	Paid	Units		Allowed	Paid
Evaluation & Management								
Total	6.787		323	305	3.710		102	106
AFDC	7.072		398	380	1.498		46	47
SSI	7.413		321	307	6.070		162	170
SOBRA Children	5.508		219	213	2.801		71	74
SOBRA Mothers	6.388		257	173	7.465		279	285
	Units		Allowed	Paid	Units		Allowed	Paid
Procedures								
Total	1.185		203	203	2.215		91	95
AFDC	0.803		108	104	0.326		38	40
SSI	1.135		126	112	4.505		162	169
SOBRA Children	1.670		44	40	0.664		18	19
SOBRA Mothers	1.984		1,688	1,805	2.399		173	180
	Units		Allowed	Paid	Units		Allowed	Paid
Maternity								
Total	0.101		63	57	0.047		14	15
AFDC	0.069		35	35	0.057		19	20
SSI	0.013		11	11	0.000		0	0
SOBRA Children	0.000		0	0	0.000		0	0
SOBRA Mothers	1.076		694	615	2.933		764	800
	Units		Allowed	Paid	Units		Allowed	Paid
Tests								
Total	3.433		43	36	1.909		24	25
AFDC	1.641		20	17	0.425		7	7
SSI	5.164		69	58	3.760		45	46
SOBRA Children	1.426		17	14	0.210		2	2
SOBRA Mothers	12.104		128	106	6.931		163	172
	Units		Allowed	Paid	Units		Allowed	Paid
Imaging								
Total	0.746		35	32	0.803		31	32
AFDC	0.428		11	11	0.317		10	11
SSI	1.162		65	56	1.360		54	57
SOBRA Children	0.479		10	10	0.259		4	4
SOBRA Mothers	1.446		109	108	5.065		318	335

Table 4-14

INSTITUTIONAL UTILIZATION PER PERSON-YEAR FOR ETHNICITY BLACK BY TYPE OF SERVICE, ELIGIBILITY GROUP, AND STATE FOR FY91 AND FY92

	---------------Arizona---------------				--------------New Mexico------------			
	Years				Years			
Person-Years								
Total	2,229				557			
AFDC	1,824				441			
SSI	188				59			
SOBRA Children	198				53			
SOBRA Mothers	20				3			
	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
Inpatient								
Total	0.860	0.169	665	657	0.623	0.192	370	369
AFDC	0.679	0.155	487	477	0.639	0.200	358	355
SSI	1.919	0.154	1,373	1,370	0.791	0.202	595	601
SOBRA Children	1.318	0.192	931	928	0.187	0.094	174	174
SOBRA Mothers	2.967	1.381	7,771	7,771	2.407	0.602	1,232	1,232
	Claims		Allowed	Paid	Claims		Allowed	Paid
Outpatient								
Total	0.851		206	205	1.692		189	190
AFDC	0.714		178	176	1.451		174	175
SSI	2.504		460	458	2.945		349	351
SOBRA Children	0.530		194	194	2.097		123	122
SOBRA Mothers	1.023		534	533	4.813		375	378
	Units		Allowed	Paid	Units		Allowed	Paid
Evaluation & Management								
Total	4.885		183	160	4.682		125	131
AFDC	4.212		160	134	3.937		108	113
SSI	8.793		306	295	9.263		248	259
SOBRA Children	7.138		267	263	5.822		131	136
SOBRA Mothers	7.161		271	220	3.309		115	121
	Units		Allowed	Paid	Units		Allowed	Paid
Procedures								
Total	0.906		91	92	1.374		86	90
AFDC	0.854		72	71	1.489		91	95
SSI	0.739		186	176	0.656		103	109
SOBRA Children	1.484		89	87	1.273		30	31
SOBRA Mothers	1.483		1,018	1,250	0.602		93	94
	Units		Allowed	Paid	Units		Allowed	Paid
Maternity								
Total	0.048		31	25	0.215		30	31
AFDC	0.045		30	24	0.261		31	33
SSI	0.000		0	0	0.000		0	0
SOBRA Children	0.005		0	0	0.000		0	0
SOBRA Mothers	1.176		699	592	1.504		820	868
	Units		Allowed	Paid	Units		Allowed	Paid
Tests								
Total	2.048		24	20	1.869		22	23
AFDC	1.890		22	18	1.379		17	17
SSI	3.184		38	32	5.506		64	67
SOBRA Children	1.116		16	13	0.730		10	11
SOBRA Mothers	15.293		162	140	20.155		201	203
	Units		Allowed	Paid	Units		Allowed	Paid
Imaging								
Total	0.525		21	19	0.727		24	25
AFDC	0.449		18	16	0.628		17	18
SSI	1.138		49	46	1.784		84	87
SOBRA Children	0.459		12	10	0.243		9	9
SOBRA Mothers	2.353		153	146	2.707		123	131

Table 4-15

INSTITUTIONAL UTILIZATION PER PERSON-YEAR FOR ETHNICITY WHITE BY TYPE OF SERVICE, ELIGIBILITY GROUP, AND STATE FOR FY91 AND FY92

	Arizona				New Mexico			
	Years				Years			
Person-Years								
Total	11,346				3,837			
AFDC	6,597				2,340			
SSI	1,090				795			
SOBRA Children	3,040				666			
SOBRA Mothers	618				36			
	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
Inpatient								
Total	0.927	0.283	809	804	2.165	0.284	1,162	1,165
AFDC	0.690	0.182	497	494	1.245	0.283	753	761
SSI	2.009	0.326	2,133	2,111	6.202	0.417	3,087	3,090
SOBRA Children	0.702	0.268	467	464	0.534	0.093	275	262
SOBRA Mothers	2.648	1.360	3,477	3,470	3.028	0.936	1,676	1,700
	Claims		Allowed	Paid	Claims		Allowed	Paid
Outpatient								
Total	0.818		230	228	2.122		273	272
AFDC	0.754		201	200	1.974		230	228
SSI	1.984		531	527	3.027		516	514
SOBRA Children	0.538		96	96	1.426		126	124
SOBRA Mothers	0.817		658	654	4.652		483	483
	Units		Allowed	Paid	Units		Allowed	Paid
Evaluation & Management								
Total	7.488		253	227	8.153		219	228
AFDC	7.075		238	212	7.571		202	211
SSI	14.712		442	386	11.558		332	345
SOBRA Children	5.995		216	209	6.181		143	147
SOBRA Mothers	6.492		257	191	7.350		214	223
	Units		Allowed	Paid	Units		Allowed	Paid
Procedures								
Total	1.344		221	220	1.775		116	120
AFDC	1.093		156	154	1.671		113	117
SSI	1.398		281	254	2.479		169	173
SOBRA Children	1.722		67	63	1.312		54	56
SOBRA Mothers	2.072		1,563	1,642	1.542		317	332
	Units		Allowed	Paid	Units		Allowed	Paid
Maternity								
Total	0.149		113	101	0.148		21	22
AFDC	0.086		55	49	0.187		25	26
SSI	0.012		10	9	0.058		9	10
SOBRA Children	0.000		0	0	0.000		0	0
SOBRA Mothers	1.794		1,462	1,324	2.285		395	414
	Units		Allowed	Paid	Units		Allowed	Paid
Tests								
Total	2.969		39	32	2.875		32	33
AFDC	2.452		33	27	2.466		25	26
SSI	5.442		84	66	5.304		66	68
SOBRA Children	1.137		14	11	0.892		10	11
SOBRA Mothers	13.133		153	131	12.471		131	135
	Units		Allowed	Paid	Units		Allowed	Paid
Imaging								
Total	0.790		39	35	1.088		42	44
AFDC	0.683		30	26	0.859		31	32
SSI	1.885		104	93	2.318		102	104
SOBRA Children	0.390		12	11	0.348		8	8
SOBRA Mothers	1.972		154	146	2.560		101	106

Table 4-16

INSTITUTIONAL UTILIZATION PER PERSON-YEAR FOR ETHNICITY HISPANIC BY TYPE OF SERVICE, ELIGIBILITY GROUP, ANO STATE FOR FY91 AND FY92

	---------------Arizona---------------				--------------New Mexico------------			
	Years				Years			
Person-Years								
Total	9,906				6,948			
AFDC	6,699				5,142			
SSI	272				199			
SOBRA Children	2,592				1,555			
SOBRA Mothers	344				52			
	Days	Admissions	Allowed	Paid	Oays	Admissions	Allowed	Paid
Inpatient								
Total	0.624	0.211	604	602	0.903	0.215	526	525
AFDC	0.492	0.146	423	420	0.964	0.237	547	551
SSI	1.990	0.338	1,901	1,900	3.664	0.337	2,534	2,457
SOBRA Children	0.511	0.204	511	511	0.286	0.092	156	154
SOBRA Mothers	2.986	1.425	3,811	3,802	2.738	1.206	1,754	1,744
	Claims		Allowed	Paid	Claims		Allowed	Paid
Outpatient								
Total	0.793		197	195	1.646		177	177
AFDC	0.835		175	174	1.538		175	175
SSI	1.482		391	388	4.344		578	573
SOBRA Children	0.597		128	127	1.530		121	120
SOBRA Mothers	0.898		980	976	5.476		521	523
	Units		Allowed	Paid	Units		Allowed	Paid
Evaluation & Management								
Total	4.633		171	158	5.682		148	154
AFDC	4.205		153	142	5.777		152	159
SSI	9.025		435	423	7.574		214	217
SOBRA Children	5.083		181	170	5.154		127	132
SOBRA Mothers	6.100		236	172	4.825		151	157
	Units		Allowed	Paid	Units		Allowed	Paid
Procedures								
Total	1.077		143	138	1.290		82	85
AFDC	0.874		109	101	1.275		86	90
SSI	1.386		363	341	1.802		164	169
SOBRA Children	1.494		52	48	1.273		46	48
SOBRA Mothers	1.649		1,338	1,376	1.245		404	420
	Units		Allowed	Paid	Units		Allowed	Paid
Materntiy								
Total	0.074		53	43	0.093		18	19
AFDC	0.040		27	23	0.102		20	21
SSI	0.037		15	6	0.070		9	10
SOBRA Children	0.000		0	0	0.000		0	0
SOBRA Mothers	1.332		1,006	784	2.123		407	421
	Units		Allowed	Paid	Units		Allowed	Paid
Tests								
Total	2.325		27	22	1.867		21	22
AFDC	2.117		25	21	2.038		23	24
SSI	5.222		74	58	2.658		38	40
SOBRA Children	1.165		13	10	0.933		11	11
SOBRA Mothers	12.843		132	116	9.899		112	116
	Units		Allowed	Paid	Units		Allowed	Paid
Imaging								
Total	0.550		28	23	0.694		23	25
AFDC	0.522		24	19	0.739		25	26
SSI	1.868		150	96	1.742		82	85
SOBRA Children	0.340		10	10	0.349		10	10
SOBRA Mothers	1.631		135	125	2.642		105	109

Table 4-17

INSTITUTIONAL UTILIZATION PER PERSON-YEAR FOR ETHNICITY NATIVE AMERICAN BY TYPE OF SERVICE, ELIGIBILITY GROUP, AND STATE FOR FY91 AND FY92

	---------------Arizona---------------				--------------New Mexico-----------			
	Years				Years			
Person-Years								
Total	1,258				1,528			
AFDC	877				1,066			
SSI	47				251			
SOBRA Children	298				203			
SOBRA Mothers	37				8			
	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
Inpatient								
Total	0.539	0.178	440	440	0.926	0.160	615	614
AFDC	0.369	0.121	261	261	0.633	0.141	305	305
SSI	2.448	0.341	2,256	2,256	1.761	0.255	1,441	1,437
SOBRA Children	0.514	0.175	452	452	1.356	0.104	1,177	1,177
SOBRA Mothers	2.349	1.365	2,313	2,313	2.762	1.201	1,650	1,656
	Claims		Allowed	Paid	Claims		Allowed	Paid
Outpatient								
Total	0.519		112	112	2.294		231	231
AFDC	0.464		88	88	2.232		199	199
SSI	1.767		774	767	2.518		372	369
SOBRA Children	0.430		56	56	2.145		206	206
SOBRA Mothers	0.956		298	292	7.084		802	802
	Units		Allowed	Paid	Units		Allowed	Paid
Evaluation & Management								
Total	2.631		95	90	2.728		74	77
AFDC	2.226		79	74	1.596		45	46
SSI	4.769		204	200	7.541		197	204
SOBRA Children	3.204		116	113	2.762		80	82
SOBRA Mothers	4.916		185	137	1.801		60	63
	Units		Allowed	Paid	Units		Allowed	Paid
Procedures								
Total	0.598		105	99	0.698		58	59
AFDC	0.456		61	58	0.201		20	21
SSI	1.533		372	282	2.754		219	224
SOBRA Children	0.799		71	63	0.794		54	56
SOBRA Mothers	1.147		1,085	1,118	0.120		42	44
	Units		Allowed	Paid	Units		Allowed	Paid
Maternity								
Total	0.112		89	79	0.037		10	11
AFDC	0.068		59	55	0.039		11	11
SSI	0.021		23	23	0.020		3	4
SOBRA Children	0.000		0	0	0.000		0	0
SOBRA Mothers	2.185		1,622	1,345	1.201		392	403
	Units		Allowed	Paid	Units		Allowed	Paid
Tests								
Total	1.449		17	14	0.900		13	13
AFDC	1.243		14	12	0.438		6	6
SSI	5.663		75	63	3.279		44	46
SOBRA Children	0.551		6	4	0.321		7	7
SOBRA Mothers	8.275		93	76	2.522		33	34
	Units		Allowed	Paid	Units		Allowed	Paid
Imaging								
Total	0.403		18	16	0.558		23	23
AFDC	0.308		13	12	0.247		10	10
SSI	1.533		104	76	1.865		82	83
SOBRA Children	0.410		9	9	0.567		17	18
SOBRA Mothers	1.174		86	81	0.720		30	31

Table 4-18

INSTITUTIONAL UTILIZATION PER PERSON-YEAR FOR NO CASH ELIGIBILITY BY TYPE OF SERVICE, ELIGIBILITY GROUP, AND STATE FOR FY91 AND FY92

	Arizona				New Mexico			
	Years				Years			
Person-Years								
Total	9,529				3,600			
AFDC	2,210				907			
SSI	39				13			
SOBRA Children	6,232				2,575			
SOBRA Mothers	1,049				105			
	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
Inpatient								
Total	1.081	0.380	913	910	1.547	0.375	795	791
AFDC	1.532	0.312	768	761	3.888	1.079	2,012	2,018
SSI	1.320	0.362	2,068	2,053	44.845	0.392	10,166	9,543
SOBRA Children	0.639	0.235	506	505	0.441	0.097	281	276
SOBRA Mothers	2.749	1.385	3,595	3,588	3.173	1.118	1,767	1,771
	Claims		Allowed	Paid	Claims		Allowed	Paid
Outpatient								
Total	0.617		189	188	1.798		158	157
AFDC	0.652		138	138	1.879		182	179
SSI	2.019		533	532	0.235		154	158
SOBRA Children	0.557		111	110	1.626		135	133
SOBRA Mothers	0.844		747	742	5.505		545	546
	Units		Allowed	Paid	Units		Allowed	Paid
Evaluation & Management								
Total	6.271		218	195	6.637		183	189
AFDC	8.390		258	216	10.881		344	359
SSI	6.289		283	279	17.287		475	436
SOBRA Children	5.511		198	190	5.135		125	129
SOBRA Mothers	6.320		248	183	5.496		169	175
	Units		Allowed	Paid	Units		Allowed	Paid
Procedures								
Total	1.404		220	224	1.605		71	73
AFDC	0.692		74	71	2.715		106	111
SSI	1.346		344	348	3.842		64	64
SOBRA Children	1.575		61	57	1.216		48	49
SOBRA Mothers	1.887		1,467	1,535	1.271		325	338
	Units		Allowed	Paid	Units		Allowed	Paid
Maternity								
Total	0.183		144	125	0.066		13	14
AFDC	0.018		12	9	0.019		2	3
SSI	0.000		0	0	0.000		0	0
SOBRA Children	0.000		0	0	0.000		0	0
SOBRA Mothers	1.623		1,282	1,113	2.111		430	447
	Units		Allowed	Paid	Units		Allowed	Paid
Tests								
Total	2.534		29	25	1.555		16	17
AFDC	1.530		20	16	2.567		23	23
SSI	6.212		94	79	0.941		14	15
SOBRA Children	1.125		13	11	0.843		10	10
SOBRA Mothers	12.884		143	124	10 361		116	120
	Units		Allowed	Paid	Units		Allowed	Paid
Imaging								
Total	0.572		29	27	0.556		17	18
AFDC	0.510		22	19	0.884		28	29
SSI	2.019		149	135	0.235		12	13
SOBRA Children	0.374		11	10	0.361		10	10
SOBRA Mothers	1.826		144	136	2.542		105	110

Table 4-19

INSTITUTIONAL UTILIZATION PER PERSON-YEAR FOR CASH ELIGIBILITY BY TYPE OF SERVICE, ELIGIBILITY GROUP, AND STATE FOR FY91 AND FY92

	---------------Arizona---------------				--------------New Mexico------------			
	Years				Years			
Person-Years								
Total	15,900				10,004			
AFDC	13,971				8,365			
SSI	1,929				1,639			
	Days	Admissions	Allowed	Paid	Days	Admissions	Allowed	Paid
Inpatient								
Total	0.610	0.155	583	579	1.232	0.177	730	733
AFDC	0.441	0.137	402	399	0.660	0.145	399	402
SSI	1.837	0.288	1,897	1,883	4.152	0.337	2,421	2,423
	Claims		Allowed	Paid	Claims		Allowed	Paid
Outpatient								
Total	0.934		232	231	1.978		246	246
AFDC	0.783		187	186	1.749		195	195
SSI	2.022		559	555	3.143		506	503
	Units		Allowed	Paid	Units		Allowed	Paid
Evaluation & Management								
Total	5.670		204	186	5.658		147	154
AFDC	4.814		176	161	4.952		125	131
SSI	11.871		402	365	9.260		259	269
	Units		Allowed	Paid	Units		Allowed	Paid
Procedures								
Total	1.018		145	137	1.331		96	100
AFDC	0.976		129	124	1.072		81	85
SSI	1.325		265	232	2.648		172	177
	Units		Allowed	Paid	Units		Allowed	Paid
Maternity								
Total	0.062		41	36	0.118		20	21
AFDC	0.068		45	40	0.133		23	24
SSI	0.013		9	7	0.040		6	7
	Units		Allowed	Paid	Units		Allowed	Paid
Tests								
Total	2.645		35	28	2.246		26	27
AFDC	2.278		29	23	1.804		21	21
SSI	5.302		78	62	4.496		56	58
	Units		Allowed	Paid	Units		Allowed	Paid
Imaging								
Total	0.719		35	29	0.894		34	35
AFDC	0.576		26	22	0.673		23	24
SSI	1.751		100	83	2.022		89	91

evaluation and management services, their rate is also smaller, by 10% in Arizona and 15% in New Mexico.

Comparison of Utilization with Other Data Sources

Utilization data from a wide variety of sources were sought for comparison with the AHCCCS and New Mexico Medicaid data. Because of the growing potential for comparison data as a result of managed care expansion nationwide, we made a concerted effort to find out more about existing Medicaid managed care programs and whether they might have data with which to compare AHCCCS data. We also obtained comparison data from published reports of Medicaid fee-for-service program data and survey data.

In this section, we discuss the results of our review of Medicaid managed care data availability, the comparison data sources that we found, and how those data sources provide comparisons with the AHCCCS and New Mexico Medicaid data. Comparison utilization rates are then presented.

Review of Medicaid Managed Care Data Availability

In late 1994 and early 1995, we called 11 selected states with Medicaid managed care programs. These states were California, Michigan, Minnesota, Missouri, New York, Ohio, Oregon, Pennsylvania, Utah, Washington, and Wisconsin.[38] These states were selected based on enrollment size, similarity to the AHCCCS program, and reputation for having capable data systems. We eliminated states with only PCCM programs, states that did not have Medicaid managed care programs in place during some portion of FY 91 and FY 92, and states with only voluntary enrollment of Medicaid beneficiaries in managed care.

We spoke to a Medicaid managed care authority from each of the contacted states and asked them about the structure of Medicaid managed care program(s) within the state; the process for collecting and reporting encounter data from

Medicaid managed care plans/providers; the use of standardized definitions in reporting encounters; state uses for Medicaid managed care utilization data collected; and the availability of summary utilization data for FY 91 and/or FY 92.

Below we present information on: 1) structure and organization of the Medicaid managed care program(s) for which data were sought; 2) encounter data reporting requirements and practices of each of these programs; 3) states' internal uses for encounter data collected from plans/providers; and 4) the receipt of summary utilization data for the period FY 91 - FY 92, with a discussion of the useability of those data for comparison purposes.

Organization and Structure of Medicaid Managed Care Programs

Figure 4-4 presents descriptive summaries of the Medicaid managed care programs in each of the states contacted. Programs are described in terms of their managed care program type, geographical scope, eligibility and enrollment criteria, and payment modes.

All but two of the 11 states contacted have more than one type of Medicaid managed care program in effect. Four states (California, New York, Ohio, and Pennsylvania) offer voluntary enrollment in some areas while mandating enrollment in other, predominately urban areas. Another four states (Michigan, Missouri, Utah, and Washington) mandate enrollment while offering beneficiaries a choice of the type of managed care plan in which they can enroll, ranging from fee-for-service PCCM to fully capitated health plans. Oregon is somewhat unique in that it mandates enrollment in one of several different managed care delivery systems, with the specific system dictated by geographic location and selected beneficiary characteristics.

In assessing coverage of eligibility groups, we asked about coverage of AFDC and SSI eligibles. Definitions of other federal and state-only eligibility groups vary substantially across states and are difficult to compare. Contacted states all target AFDC beneficiaries for managed care

Figure 4-4

ORGANIZATION AND STRUCTURE OF SELECTED MEDICAID MANAGED CARE PROGRAMS

State	Managed Care Program	Program Type*	Location	Eligibility Categories Enrolled◆	Total Number Enrolled◆◆	Enrollment Status	Payment Mode
CA	Medi-Cal Prepaid Health Plans	PHP	Statewide	AFDC; SSI	633,000^a	Voluntary	Plans fully or partially capitated; PCPs capitated for primary care services; specialist payment mode varies.
	Santa Barbara Health Initiative	HIO	Santa Barbara County	AFDC; SSI	42,000^a	Mandatory	HIO fully capitated; PCPs capitated for primary care services; specialists paid fee-for-service with risk sharing.
	Health Plan of San Mateo	HIO	San Mateo County	AFDC; SSI	51,000^a	Mandatory	HIO fully capitated; PCPs capitated for primary care services; specialists paid fee-for-service with risk sharing.
MI	HMD Program	HMO	Wayne County/Detroit area, plus other selected other urban areas	AFDC	248,000^b	Mandatory, with choice among three models	HMOs fully capitated; PCPs capitated for primary care services; specialist payment mode varies.
	PHP Program	PHP		AFDC	25,600^b		Clinics capitated for primary care services only.
	Physician Sponsor Plan	PCCM		AFDC	361,000^b		PCPs paid fee-for-service plus case management fee.
MN	Prepaid Medical Assistance Program	HMO	Selected urban & rural areas	AFDC	94,000^c	Mandatory	HMOs fully capitated; PCPs capitated for primary care services; specialist payment mode varies.
MD	Managed Health Care Program	PHP	Jackson County/ Kansas City area	AFDC	33,500^a	Mandatory, with choice among two models	Plans fully or partially capitated; PCPs capitated for primary care services; specialist payment mode varies.
	Physician Sponsor Plan	PCCM		AFDC	8,950^a		PCPs paid fee-for-service plus case management fee.

Figure 4-4 (Continued)

ORGANIZATION AND STRUCTURE OF SELECTED MEDICAID MANAGED CARE PROGRAMS

State	Managed Care Program	Program Type*	Location	Eligibility Categories Enrolled[+]	Total Number Enrolled[++]	Enrollment Status	Payment Mode
NY	Medicaid Managed Care	HMO; PHP	South Brooklyn 10-Zip area	AFDC	35,000[d]	Mandatory	Plans fully or partially capitated; PCPs capitated for primary care services; specialist payment mode varies.
	Medicaid Managed Care	HMO; PHP; PCCM	Statewide	AFDC; SSI	296,000[d]	Voluntary	Variety of payment modes; contracts include full capitation, partial capitation, and fee-for-service plus case management fee.
OH	Ohio Medicaid HMO Program	HMO	Statewide	AFDC	150,000[e]	Voluntary	HMOs fully capitated; PCPs capitated for primary care services; specialist payment mode varies.
	Mandatory Medicaid HMO Program	HMO	Montgomery County	AFDC	40,000[e]	Mandatory	HMOs fully capitated; PCPs capitated for primary care services; specialist payment mode varies.
OR	Oregon Medicaid Prepaid Plan	HMO PHP	Selected counties	AFDC	90,000[e]	Mandatory; model depends on various geographic and client factors	Variety of payment modes; contracts include full capitation & partial capitation.
	Oregon Health Plan (implemented 2/94)	HMO; PHP; PCCM	Statewide	AFDC	254,000[f]		Variety of payment modes; contracts include full capitation, partial capitation, and fee-for-service plus case management fee.
PA	HMO Contracting	HMO	Statewide	AFDC; SSI	350,000[g]	Voluntary	HMOs mostly fully capitated, with some partial capitation contracts; PCPs capitated for primary care services; specialist payment mode varies.
	HealthPASS	HIO	South & West Philadelphia	AFDC; SSI	70,000[g]	Mandatory	HIO fully capitated; PCPs capitated for primary care services; specialist payment mode varies.
UT	HMO Contracting	HMO	Selected urban areas	AFDC; SSI	25,000[h]	Mandatory, with choice among two models	HMOs fully capitated; PCPs capitated for primary care services; specialist payment mode varies.
	Primary Care Case Management	PCCM	Selected urban areas	AFDC; SSI	60,000[h]		PCPs paid fee-for-service plus per-member, per-month case management fee.

Figure 4-4 (Concluded)

ORGANIZATION AND STRUCTURE OF SELECTED MEDICAID MANAGED CARE PROGRAMS

State	Managed Care Program	Program Type*	Location	Eligibility Categories Enrolled+	Total Number Enrolled++	Enrollment Status	Payment Mode
WA	Kitsap Physician Services	HIO	Selected urban counties	AFDC	15,000[d]	Mandatory, with choice among three models	HIO fully capitated; PCPs capitated for primary care services; specialist payment mode varies.
	Medicaid Prepaid Plans	HMO; PHP	All but three counties	AFDC	283,000[d]		HMOs mostly fully capitated, with some partial capitation contracts; PCPs capitated for primary care services; specialist payment mode varies.
	Primary Care Case Management	PCCM	All but three counties	AFDC	44,000[d]		PCPs paid fee-for-service plus case management fee.
WI	HMO Preferred Enrollment Initiative	HMO	Milwaukee area	AFDC	117,600[d]	Mandatory	HMOs fully capitated; PCPs capitated for primary care services; specialist payment mode varies.

Source: Telephone and written correspondence with state Medicaid managed care program administrators, summer 1993 and winter 1994-1995.

* Medicaid managed care program type based on HCFA Office of Managed Care Definitions:

PHP	Prepaid Health Plan - either contracts on a prepaid, capitated risk basis to provide services that are not risk-comprehensive services, or contracts on a non-risk basis.
HIO	Health Insuring Organization - either provides for or arranges for the provision of care and contracts on a prepaid capitated risk basis to provide a comprehensive set of services.
HMO	Health Maintenance Organization - contracts on a prepaid, capitated risk basis to provide comprehensive health services to recipients.
PCCM	Primary Care Case Management - states contract directly with primary care providers who are responsible for the provision and/or coordination of medical sergvices to Medicaid recipients under their care. Most PCCM programs pay PCP a monthly case management fee in addition to receiving fee-for-service payment.

+ States only asked about AFDC and SSI eligibility categories. Other federal and state only categories not uniformly defined across states.

++ Enrollment figures, source and date:

a	Telephone contact with program administrator; as of 11/94
b	Telephone contact with program administrator; as of 1/95
c	1993 HMO Operation in Minnesota Report (Minnesota Department of Health); as of 4/94
d	Medicaid Managed Care Enrollment Report (HCFA, Office of Managed Care); as of 6/94
e	Written correspondence with program administrator; as of 12/94
f	Oregon Reform Medicaid Demonstration Project 1994 Annual Report (Oregon Department of Human Services); as of 10/94
g	Written correspondence with program administrator; as of 2/95
h	Telephone contact with program administrator; as of 12/94

enrollment. Only three states (California, Pennsylvania, and Utah) have programs that mandate enrollment of SSI beneficiaries as well as AFDC beneficiaries.

Encounter Data Reporting Requirements and Practices

Because payment for services is not necessarily linked to the submission of claims in a capitated system, implementing encounter data reporting requirements can be a challenge for states with Medicaid managed care programs. Obtaining comparable utilization data from different managed care programs can also be challenging, particularly in light of the lack of uniform reporting requirements and definitions across programs and states. To get a clearer picture of the quality and comparability of encounter data submitted, we asked states to describe the data submission process and to provide documentation on the data submitted by plans/providers, the frequency of submission, and whether reporting provisions include sanctions for non-compliance, data validation procedures, and/or standardized reporting instructions.

Figure 4-5 presents a summary of the encounter data reporting requirements in each state. Also included are comments relating to each state's self-assessment of provider compliance with reporting requirements and reliability of data collected.

States may require encounter data reporting on an aggregate or individual (person/claim) basis. Reporting on an aggregate basis limits the ability of the data to be used in analyses because aggregate data is constrained by the categories reported. The integrity of aggregate encounter data also rests heavily on the provision of clear, uniform definitions of the data elements to be reported. Without such definitions, providers within the same managed care program may report utilization in very different ways.

Seven of the 11 states contacted (Minnesota, New York, Ohio, Oregon, Pennsylvania, Utah, and Wisconsin) were collecting aggregate data from

Figure 4-5

ENCOUNTER DATA REPORTING REQUIREMENTS AND PRACTICES

State	Managed Care Program	Encounter Data Reporting Requirements					Comments on Encounter Data Reporting
		Type of Data Reported	Reporting Frequency	Sanctions for Non-compliance with Reporting	Data Validated	Standardized Definitions/ Reporting Instructions	
CA	Santa Barbara Health Initiative & Health Plan of San Mateo	Person/Claims-Level	Monthly	No	No	Yes	Limited encounter data collection; no summary utilization reports routinely generated from data collected; in Santa Barbara, no data reported for county primary care clinics (representing between 1/2 to 1/3 of enrollment).
MI	HMO & PHP Programs	Person/Claims-Level eliminated mid-1980s; currently developing aggregate reporting requirements.	Not yet developed	Not yet developed	Not yet developed	Not yet developed	State experienced significant compliance problems with initial person-level reporting and never did anything with data collected; now developing aggregate requirements, with some person-level reporting for beneficiaries receiving specified services.
MN	Prepaid Medical Assistance Program	Aggregate	Annual	Yes, but rarely imposed	No	Yes	Well defined reporting instructions; reports routinely generated from data collected; state fairly confident about quality of data collected.
MO	Managed Health Care Program	Person/Claims-Level	Per-service, pseudo-claims	Yes, but rarely imposed	No	Same as UB92/ HCFA1500	State acknowledges reporting compliance problems; summary utilization reports have been designed but not generated.

Figure 4-5 (Continued)

ENCOUNTER DATA REPORTING REQUIREMENTS AND PRACTICES

State	**Managed Care Program**	**Encounter Data Reporting Requirements**					**Comments on Encounter Data Reporting**
		Type of Data Reported	**Reporting Frequency**	**Sanctions for Non-compliance with Reporting**	**Data Validated**	**Standardized Definitions/ Reporting Instructions**	
NY	Medicaid Managed Care	Person/Claims-Level & Aggregate	Quarterly	No	No	No	State has detailed instructions and reporting requirements in place, but has had difficulty with compliance; no reports routinely generated from data collected.
OH	Ohio Medicaid HMO Program Mandatory Medicaid HMO Program	Aggregate	Quarterly & Annual	Yes	Yes	Yes	Detailed reporting instructions in place; data validated and sanctions imposed for non-compliance; state routinely generates reports from data and is fairly confident in the accuracy and completeness of data reported.
OR	Oregon Medicaid Prepaid Plan	Aggregate	Quarterly	No	No	No	Data reporting compliance very low prior to OHP Demonstration (2/94); no summary reports generated. (OHP implementation includes detailed person-level encounter reporting provisions, but plans given up to 395 days after date of service to report encounters; state will not be able to assess quality and completeness of OHP data until mid-1995.)

Figure 4-5 (Concluded)

ENCOUNTER DATA REPORTING REQUIREMENTS AND PRACTICES

State	Managed Care Program	Encounter Data Reporting Requirements					Comments on Encounter Data Reporting
		Type of Data Reported	Reporting Frequency	Sanctions for Non-compliance with Reporting	Data Validated	Standardized Definitions/ Reporting Instructions	
PA	HealthPASS	Aggregate	Not Available	Not Available	Not Available	Not Available	Unable to assess encounter data reporting activity; written documents provided by state show evidence of some utilization monitoring, but no documentation of reporting requirements/routine summary reports provided; unable to make telephone contact with state program administrator.
UT	HMO Contracting	Aggregate	Semi-Annual	No	No	Yes	Reporting instructions not well defined; state not very confident about completeness/ uniformity of data reported; no reports routinely generated.
WA	Kitsap Physician Services & Medicaid Prepaid Plans	Aggregate reporting until 12/93; added person/ claims-level starting 12/93	Quarterly	No, but planned for contract year '95	No, but planned for contract year '95	Yes	Data prior to 1994 not very reliable; low reporting compliance and no validation mechanisms; no reports routinely generated.
WI	HMO Preferred Enrollment Initiative	Aggregate; person/claims-level for enrollees who receive specified services	Quarterly & Annual	Yes	Yes	Yes	State fairly confident in completeness and accuracy of data reported; summary reports routinely generated from aggregate data, but not from person/claims-level data.

capitated plans during the utilization analysis study period. One state, Washington, implemented person/claims-level reporting in late 1993, while another state, Michigan, ceased person/claims-level reporting after experiencing significant compliance problems and is currently developing new aggregate reporting requirements. Three states (California, Missouri, and New York) had person/claims-level reporting requirements in place during the study period and continue to implement those requirements at present.

Of the seven states with aggregate reporting requirements, only three (Minnesota, Ohio, and Wisconsin) issue detailed reporting instructions that include definitions for categories of service reported. Two of these (Wisconsin and Ohio) are also the only states that perform formal data validations and regularly impose sanctions for non-compliance with data reporting. Utah and New York provide instructions that are somewhat vague and open to varied interpretations, and Oregon did not provide reporting instructions until the implementation of the Oregon Health Plan in February 1994. Pennsylvania has been contacted several times to provide information about its encounter data reporting requirements and has not provided evidence of such requirements or reporting instructions.

Of the three states (California, Missouri, and New York) collecting person/claims-level encounters from capitated plans, all have acknowledged significant problems with reporting compliance, none have implemented formal data validation procedures, and none have generated any summary utilization reports from the encounter data collected.

State Reported Uses for Encounter Data

States were also asked to describe their own internal uses for the encounter data collected from capitated plans and providers. While the willingness of states to use data collected does not necessarily mean that the data are reliable, the decision of states not to use such data can be an indication that the data are problematic. State-reported uses for Medicaid managed care encounter data, including whether summary utilization reports are routinely generated by the state, are summarized in Figure 4-6.

Only two of the states contacted (Missouri and New York) reported internal uses for encounter data that cover most or all of the major oversight and policy arenas toward which such data could be applied. Neither of these states, however, routinely generate summary reports from the utilization data collected. It is therefore unlikely that these states use the data collected as a routine source of information for monitoring and planning purposes. Most of the states reported that encounter data were used for quality assurance and/or utilization monitoring purposes, but again, only three states (Minnesota, Ohio, and Wisconsin) reported that they routinely generate reports from the data collected. Conversations with program administrators from the other states reveal that most use encounter data sporadically, generating reports on an ad hoc basis as interest in a particular area of quality of care or utilization assessment arises. Few states reported using encounter data for capitation rate setting or program planning purposes.

Receipt and Useability of Comparison Data

The three states (Minnesota, Ohio, Wisconsin) that routinely generate summary utilization reports from encounter data are the only three that were able to provide data that could be used in comparison with AHCCCS and New Mexico Medicaid utilization data for the period FY 91 - FY 92. As mentioned previously, all three of these states collect aggregate-level data and provide definitions for data elements to be reported. Figure 4-7 summarizes the characteristics and limitations of the data provided to us by each of these states.

All three states provided rates for hospital admissions/lengths of stay and non-institutional physician encounters (ranging from primary care encounters only to all physician encounters). Only one state, Wisconsin, provided utilization rates for outpatient ancillary services such as laboratory and radiology.

Figure 4-6

STATE REPORTED USES FOR ENCOUNTER DATA

State	Managed Care Program	State Reported Uses for Encounter Data Collected*				State Routinely Generates Summary Reports from Data Collected
		Quality Assurance	Utilization Monitoring	Capitation Rate Setting	Program Planning	
CA	Santa Barbara Health Initiative & Health Plan of San Mateo	✓	✓			No
OR	HMC & PHP Programs					No
MN	Prepaid Medical Assistance Program	✓				Yes
OH	Managed Health Care Program	✓	✓	✓		No
OH	Medicaid Managed Care	✓	✓	✓	✓	No
OH	Ohio Medicaid HMO Program	✓	✓			Yes
OR	Oregon Medicaid Prepaid Plan					No
OH	HealthPASS	N/A	N/A	N/A	N/A	N/A
UT	HMO Contracting				✓	No
WA	Kitsap Physician Services & Medicaid Prepaid Plans					No
WI	HMO Preferred Enrollment Initiative	✓	✓			Yes

* State-reported uses for encounter data were categorized into four areas: quality assurance, utilization monitoring, capitation rate setting, and program planning. States were probed for these areas when necessary.

N/A Information not available. Pennsylvania was contacted several times and did not respond to specific questions about encounter data reporting.

Figure 4-7

CHARACTERISTICS OF COMPARISON DATA RECEIVED

State	**Managed Care Program**	**Characteristics of Data Received**					**Comments on Comparability**
		Time Period	**Eligiblity Category**	**Types of Services Reported**		
				Institutional	**Non-Institutional**	
MN	Prepaid Medical Assistance Program	Calendar Year 1992	AFDC	Admissions Days ALOS (broken out by diagnosis) ER utilization	Evaluation & Management Services Cholesterol Screens Pap Smears Mammographies	Comparable to utilization by AFDC population in AHCCCS.
OH	Ohio Medicaid HMO Program	Calendar Year 1991	AFOC	Discharges Days ALOS ER utilization	Primary Care Encounters Specialist Visits	Data not broken out by whether beneficiary resides in mandatory or volunatry enrollment area. Voluntary enrollees are not as appropriate a comparison because of the possibility of differential selection in the decision to participate.
WI	HMO Preferred Enrollment Initiative	Non-Institutional: Calendar Year 1992 Institutional: 4th Quarter, Calendar Year 1992	AFDC	Admissions Days ALOS laboratory pharmacy radiology ER utilization	Physician office visits laboratory pharmacy radiology	Non-institutional rates comparable to utilization by AFDC population in AHCCCS. Institutional rates represent only three months of reporting, (Oct.-Dec.) Must consider impact of shorter reporting period (e.g., impact of winter weather, holiday season, etc.).

ALOS Average Length of Stay

Comparison Data Sources

Utilization data obtained for comparison with the AHCCCS and New Mexico Medicaid data include encounter data from other Medicaid managed care states, fee-for-service Medicaid program data, and survey data. These data sources differ in terms of how services are defined, the population studied, the method of data collection, and the time period and geographical area for which data were collected.

The primary consideration in choosing data sources was the availability of data comparable to those used in the Arizona and New Mexico analysis. A large number of utilization variables are examined, and no single source can be expected to provide an exact comparison for all of these variables. By using a variety of sources, it is possible to obtain several comparisons for the major utilization variables.

How services are defined in each of the data sources must be considered in the comparisons. It is rare for two data sources to define their utilization categories in an identical manner. For example, physician services may include or exclude surgeries, emergency room visits, telephone calls, paramedical visits, etc. In presenting the data in this chapter we have tried to be sensitive to these differences, explicitly pointing them out in the comparison data.

Another consideration in choosing comparison data sources was the similarity between the populations in the data source and our study groups. For example, encounter data from other Medicaid managed care programs with mandatory enrollment of Medicaid beneficiaries provide information on a population and delivery system similar to those in AHCCCS. Even when comparing two Medicaid managed care populations, however, differences in the mix of eligibility categories, age distribution, and gender distribution can affect the use of services.

Below we discuss each of the major kinds of data sources and the data we found. The major sources are Medicaid encounter data from other state

Medicaid managed care programs, Medicaid fee-for-service program data, and survey data. A complete list of the comparison sources is presented in Figure 4-8. The reference numbers shown in Figure 4-8 correspond with the source numbers given in the tables shown later in this chapter.

Medicaid Managed Care Encounter Data

The AHCCCS program mandatorily enrolls categorical populations in fully-capitated health plans statewide. To put the utilization findings presented earlier into perspective, it is useful to compare these findings to the utilization of health care services by similar populations in similar delivery systems. After substantial effort to obtain comparison encounter data from 11 selected states with Medicaid managed care programs, we were able to secure comparison data from three states: Ohio, Minnesota, and Wisconsin.

The source of comparison encounter data for Medicaid managed care beneficiaries in Ohio is the Medicaid-Serving HMOs: Calendar Year (CY) 1991 Annual Utilization Report published by the Ohio Department of Human Services, Managed Health Care Section. This summary report was generated from a series of aggregate utilization reports required to be submitted to the state by fully-capitated Medicaid-serving HMOs in Ohio on both a quarterly and annual basis. The summary data in this report is for AFDC beneficiaries only and aggregates encounters for both mandatorily (22%) and voluntarily (78%) enrolled beneficiaries for the period January through December 1991. The CY 91 report presents information on enrollment, hospital discharges, lengths of stay, emergency room use, and physician visits. When comparing these data to those for the AHCCCS population, it is important to keep in mind that the Ohio data include utilization by voluntarily enrolled beneficiaries.

The data source for utilization of health services by Medicaid managed care beneficiaries in Minnesota is the 1992 HMO Operations in Minnesota Report, published by the Minnesota Department of Health, HMO Section. This report presents enrollment and utilization statistics for commercial HMOs as well as Medicaid-serving HMOs for the period January through December 1992.

Figure 4-8

COMPARISON DATA SOURCE REFERENCE NUMBERS AND DESCRIPTION BY SOURCE

	Ref. No.*	Description
Ohio Medicaid HMO	1	Medicaid-Serving HMOs: Calendar Year (CY) 1991 Annual Utilization Report (Ohio Department of Human Services, Managed Health Care Section), July 1993.
Minnesota Medicaid HMO	2	1992 HMO Operations in Minnesota (Minnesota Department of Health, HMO Section), December 1993.
Wisconsin Medicaid HMO	3	CY 1992 HMO Utilization Summary (State of Wisconsin Department of Health and Social Services, Bureau of Health Care Financing), June 1993. Quarter 4, 1992 HMO Hospital Summary Report (State of Wisconsin Department of Health and Social Services, Bureau of Health Care Financing), June 1993.
HCFA 2082	4	Statistical Report on Medical Care: Eligibles, Recipients, Payments, and Services (U.S. Department of Health and Human Services, Health Care Financing Administration, Bureau of Data Management and Strategy, Office of Program Statistics, Division of Medicaid Statistics), 1991.
Medi-Cal	5	Medi-Cal Services and Expenditures Month-of-Payment Report (California Department of Health Services, Medical Care Statistics Section), 1991.
Oregon Medicaid	6	Coopers and Lybrand, Oregon Health Plan Medicaid Demonstration - Analysis of Federal Fiscal Year 1994 and 1995 Average Costs, April 1993.

Figure 4-8 (Continued)

COMPARISON DATA SOURCE REFERENCE NUMBERS AND DESCRIPTION BY SOURCE

	Ref. No.*	Description
NHIS 1990	7	P. F. Adams and V. Benson, Current Estimates from the National Health Interview Survey, 1990, National Center for Health Statistics, Vital and Health Statistics 10 (181), December 1991.
NHDS 1991	8	E. J. Graves, "National Hospital Discharge Survey," Advance Data, No. 227, Vital and Health Statistics of the National Center for Health Statistics, March 3, 1993.
NMES 1987	9	J. Cohen, L. Cornelius, B. Hahn, and H. Levy, Use of Services and Expenses for the Noninstitutionalized Population under Medicaid (AHCPR Pub. No. 94-0051). National Medical Expenditure Survey Research Findings 20 (Agency for Health Care Policy and Research, Rockville, MD: Public Health Service), April 1994.
		P. Cunningham and L. Cornelius, Use of Health Care: Findings from the SAIAN and the Household Survey (AHCPR Pub. No. 93-0041). National Medical Expenditure Survey Research Findings 16 (Agency for Health Care Policy and Research, Rockville, MD: Public Health Service), April 1993.
		Melissa Wilets, Percent Distribution of Ambulatory Visits Across Hospital Outpatient Departments, Hospital Emergency Departments, and Physicians' Offices, draft table. National Medical Expenditure Survey unpublished preliminary results (Agency for Health Care Policy and Research, Rockville, MD: Public Health Service), forthcoming.

Figure 4-8 (Concluded)

COMPARISON DATA SOURCE REFERENCE NUMBERS AND DESCRIPTION BY SOURCE

	Ref. No.*	Description
AHA 1989	10	American Hospital Association, AHA Hospital Statistics - A Comprehensive Summary of U.S. Hospitals 1990-1991, 1990.
NAMCS 1991	11	Susan M. Schappert, "National Ambulatory Medical Care Survey: 1991 Summary," Advance Data, No. 230, Vital and Health Statistics of the National Center for Health Statistics, March 29, 1993.
NAMCS 1992	12	Susan M. Schappert, "National Ambulatory Medical Care Survey: 1992 Summary," Advance Data, No. 253, Vital and Health Statistics of the National Center for Health Statistics, August 18, 1994.
NHAMCS 1992	13	L. F. McCaig, "National Hospital Ambulatory Medical Care Survey: 1992 Emergency Department Summary," Advance Data, No. 245, Vital and Health Statistics of the National Center for Health Statistics, March 2, 1994.
		L. F. McCaig, "National Hospital Ambulatory Medical Care Survey: 1992 Outpatient Department Summary," Advance Data, No. 248, Vital and Health Statistics of the National Center for Health Statistics, March 9, 1994.
HMO Industry Profile	14	Susan Palsbo, Vincent Miller, Lili Pan, Christopher Bergsten, Dennis Hodges, and Constance Barnes, HMO Industry Profile 1993 Edition, Research and Analysis Department, Group Health Association of America, Inc., November 1993.

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* These numbers and source abbreviations refer to Tables 4-20 to 4-24.

The summary data for Minnesota presented in this chapter are for AFDC-only beneficiaries mandatorily enrolled in fully-capitated HMOs in Minnesota's metropolitan counties. These data are derived from a series of aggregate encounter reports required to be submitted to the state on an annual basis by Medicaid prepaid health plans in Minnesota. We present Minnesota Medicaid HMO data for hospital admissions/lengths of stay, emergency room use, and physician visits.

The sources of Medicaid managed care encounter data for Wisconsin are the HMO Utilization Summary for CY 92 and the HMO Hospital Summary Report for Quarter 4, 1992, both issued by the State of Wisconsin Department of Health and Social Services, Bureau of Health Care Financing. The Wisconsin data presented in this chapter are for AFDC beneficiaries mandatorily enrolled in fully-capitated HMOs in the Milwaukee area, and are generated by the state from quarterly and annual HMO utilization reports required to be submitted to the state by all Medicaid contracted HMOs. We present data from Wisconsin for hospital admissions/lengths of stay, emergency room use, ancillary service use, and physician visits.

Other Comparison Data Sources

Two other major types of data sources were sought for comparison: Medicaid fee-for-service program data and survey data. In selecting data sources, only published comparison data sources were examined. These sources use both primary data collection and surveys to obtain data.

Because of the similarity of the enrolled categorical populations, national and state Medicaid program data are important to collect for comparison with AHCCCS and the New Mexico Medicaid program. Medicaid data are available from a variety of sources.

HCFA's Division of Medicaid Statistics collects utilization data for the Medicaid population in each state via the HCFA 2082 Report, a hard copy report that collects statistical summary data from states on Medicaid eligibles, recipients, services, and expenditures for a specified fiscal year. It is important to note that HCFA uses the number of Medicaid recipients, not Medicaid eligibles, as the denominator when calculating utilization rates, and combines both acute care and long-term care Medicaid beneficiaries. Recipients include those who are dually eligible for Medicare and Medicaid. Utilization rates reported in the HCFA data exclude crossover services for which no Medicaid payment is made. This chapter presents comparison data on hospital discharges/lengths of stay and physician visits from HCFA 2082 reports for FY 91. Limitations of this source are that the data are reported by payment date rather than service date, claims are not adjusted, and considerable variation exists in reporting conventions across states.

Use of Medi-Cal program services in CY 1991 is presented in the Services and Expenditures Month-of-Payment Report produced by the California Department of Health Services (CDHS). These data are for beneficiaries enrolled in the traditional fee-for-service Medi-Cal program statewide. The report, which is a compilation of monthly claims data from computer tapes provided to CDHS, furnishes utilization rates for a large number of services broken down by eligibility category. We present data for hospital inpatient days, physician visits, and ancillary service use. The two eligibility categories of interest for this study are public assistance families (25,868,526 eligibles) and public assistance aged, blind, and disabled (10,691,659 eligibles). This data source has a population and data collection method that are similar to those used in our analysis, however, Medi-Cal statistics relate to the date of payment rather than the date of service.

Utilization data are available for Oregon fee-for-service Medicaid beneficiaries in a 1993 report on the Oregon Health Plan Medicaid Demonstration prepared by Coopers & Lybrand. This report, a calculation of per-capita costs for the Oregon Medicaid Demonstration, presents average utilization rates for hospital admissions, physician services, and ancillary services by eligibility category over the period July 1990 through December 1991. Rates are based on detailed claims and eligibility data from the Oregon MMIS. The format and source of these data, as well as the enrolled population, are similar to those in our analysis.

Several survey data sources are also used for comparison purposes. Survey data are generally considered to be less accurate sources of information of this type than administrative records. One reason for this is that survey rates of use are annualized rates derived from people's answers to questions about a short, fixed period of time.

The National Health Interview Survey (NHIS) is an annual household survey containing questions related to health, socioeconomic, and demographic measures. The data presented here on hospital discharges/lengths of stay and physician visits are for the 1990 NHIS survey of 119,631 civilian non-institutionalized persons representing 46,476 households. Because these data pertain to the general population, we would expect them to differ from the Medicaid program data.

The National Hospital Discharge Survey (NHDS) is an annual survey that collects data on expected source of payment, length of stay, and patterns of hospital utilization. The survey findings include rates for hospital discharges, lengths of stay, and days of care. The rates presented here are from the 1991 NHDS based on the abstraction of inpatient medical records for approximately 274,000 patients discharged from 484 short-stay, non-Federal hospitals across the U.S. Unlike AHCCCS and other comparison sources, NHDS excludes newborn discharges.

The National Medical Expenditure Survey (NMES), run by the Agency for Health Care Policy and Research, is a household survey conducted roughly every ten years, most recently in 1987. The survey collects information on ambulatory physician, outpatient department and emergency room use; inpatient hospital stays; and selected other measures of medical use and expenditures. In 1987, the NMES surveyed 17,500 households utilizing a sampling methodology to oversample populations of particular policy concern (e.g., blacks, Hispanics, elderly, poor). In this section, we present 1987 NMES data on hospital stays and physician visits for non-institutionalized persons enrolled in Medicaid for the full calendar year. Crossover services for dually-eligible beneficiaries are included in the data presented. We also present data on hospital stays, physician visits, and emergency room utilization for the general population.

The American Hospital Association (AHA) conducts an annual survey of hospitals that collects data on inpatient admissions and lengths of stay broken out by a variety of hospital and patient characteristics. The 1989 AHA survey included responses from 5,455 community hospitals, representing 31,116,048 admissions. These data provide information on hospital length of stay for the general U.S. population.

The National Ambulatory Medical Care Survey (NAMCS) generates physician visit rates from a random survey of non-Federal, office-based physicians selected from the American Medical Association and American Osteopathic Association master files. Specialists in anesthesiology, pathology, and radiology are not included in the survey. In 1991, the NAMCS sampled 2,540 non-federal, office-based physicians who completed 33,795 patient records. The 1992 NAMCS sampled 3,000 physicians completing 34,606 patient records. Because the NAMCS does not include visits to hospital emergency and outpatient departments, the National Center for Health Statistics implemented the National Hospital Ambulatory Medical Care Survey (NHAMCS) in 1992 to capture information on ambulatory utilization within emergency and outpatient departments. The 1992 NHAMCS sampled 524 non-Federal short-stay or general hospitals that completed 36,271 patient records. This chapter presents NAMCS data on office-based ambulatory visits for 1991 as well as NAMCS and NHAMCS data on office and hospital-based ambulatory visits for 1992. Data on emergency department use are also presented from the 1992 NHAMCS.

AHCCCS utilization can be compared with that of other prepaid delivery systems using data from the Group Health Association of America (GHAA). The 1991 Annual HMO Industry Survey collected 1991 utilization information from 369 of the 543 HMOs operating in the United States on or before January 1, 1991. The responding plans represent approximately 31 million members (80% of all HMO enrollees in the U.S. at the end of 1991). The GHAA Survey provides rates for hospital discharges, lengths of stay and physician visits for all enrollees and Medicaid enrollees by plan characteristics. Although no data are provided on the characteristics of the HMO Medicaid population, we believe that national Medicaid enrollment in HMOs is predominately AFDC.[39] This chapter presents comparison data for both Medicaid HMO enrollees and all HMO enrollees.

Analyses of Rates

This section presents data on the rates of AHCCCS and New Mexico Medicaid use for major types of services and compares it with available data sources. The analysis is divided into two parts: institutional services and non-institutional services. The utilization rates reported are calculated by weighting actual enrollee utilization by length of enrollment. All of the numbers presented in this section represent annual rates.

Institutional Services

Inpatient Hospital

In comparing hospital inpatient utilization across sources, we examined number of hospital days, number of hospital admissions, and average length of stay. Table 4-20 compares inpatient hospital utilization rates across several sources of data. Overall, AHCCCS rates for AFDC beneficiaries are in the range of those for other Medicaid managed care AFDC beneficiaries. AHCCCS rates for days and length of stay appear to be generally similar or smaller than the comparison data for Medicaid fee-for-service beneficiaries and the general population, whereas AHCCCS admission rates tend to be somewhat larger. New Mexico's rates are generally larger than the other comparison data presented.

Medicaid Managed Care Data — Included in Table 4-20 are comparison data for three Medicaid managed care AFDC populations. Arizona's rate of 590

Table 4-20

INPATIENT HOSPITAL UTILIZATION: COMPARISON OF AHCCCS AND NEW MEXICO MEDICAID DATA WITH SELECTED DATA SOURCES

	Date	Days per 1,000 Person-Years	Admissions/ Discharges per 1,000 Person-Years	Average Length of Stay (Days)
AHCCCS Plan Data				
All Eligibility Groups	FY91/92	787	240	3.3
AFDC	FY91/92	590	161	3.7
SSI	FY91/92	1,827	290	6.3
SOBRA	FY91/92	943	401	2.4
New Mexico Medicaid Data				
All Eligibility Groups	FY91/92	1,316	229	5.7
AFDC	FY91/92	976	237	4.1
SSI	FY91/92	4,466	337	13.3
SOBRA	FY91/92	548	137	4.0
Comparison Data				
Medicaid Managed Care Data				
Ohio Medicaid HMO (AFDC)	CY91	696	172	4.0
Minnesota Medicaid HMO (AFDC)	CY92	538	135	3.7
Wisconsin Medicaid HMO (AFDC)	CY92*	454	124	3.7
Medicaid Fee-For-Service Data				
HCFA 2082	FY91	1,162	212	5.5
Medi-Cal				
Families	CY91	396	N/A	N/A
Aged, Blind, Disabled	CY91	2,124	N/A	N/A
Oregon Medicaid (AFDC)	1990/91+	N/A	169	N/A

Table 4-20 (Concluded)

INPATIENT HOSPITAL UTILIZATION: COMPARISON OF AHCCCS AND NEW MEXICO MEDICAID DATA WITH SELECTED DATA SOURCES

	Date	Days per 1,000 Person-Years	Admissions/ Discharges per 1,000 Person-Years	Average Length of Stay (Days)
Survey Data				
NHIS	CY90	N/A	110	6.3
NHDS**	CY91	N/A	N/A	7.2
NMES				
General Population	CY87	N/A	N/A	9.1
Medicaid++	CY87	N/A	N/A	9.2
AHA	CY89	794	124	6.4
HMO Industry Profile				
All Enrollees	CY91	379	84	4.5
Medicaid***	CY91	759	156	4.9

Source: Ohio Medicaid HMO 1; Minnesota Medicaid HMO 2; Wisconsin Medicaid HMO 3; HCFA 2082 4; Medi-Cal 5; Oregon Medicaid 6; NHIS 7; NHDS 8; NMES 9; AHA 10; HMO Industry Profile 14.

N/A Not Available
* Represents three months of reporting (Quarter 4, 1992)
+ July 1990 through December 1991
** Excludes newborn infants
++ Data for persons enrolled in Medicaid for the full year.
*** The national HMO Medicaid enrollment is probably over 90% AFDC. However, no definitive statistics are available.

inpatient hospital days per 1,000 AFDC person-years is within the range of the rates reported by the other programs, approximately 450 in Wisconsin, 540 in Minnesota, and 700 in Ohio. Inpatient hospital admissions per 1,000 AFDC person-years in Arizona (160) is also generally consistent with those reported by the other three managed care programs, which range from about 120 admissions in Wisconsin to 170 admissions in Ohio. Average length of stay, 3.7 days, is identical for AFDC beneficiaries in Arizona, Minnesota, and Wisconsin. Ohio's length of stay is longer, 4.0 days.

Medicaid Fee-For-Service Program Data — National Medicaid program data are available through HCFA. The data reported include crossover claims for which some payment is made by Medicaid in the numerator and include crossover beneficiaries in the denominator. Applying the same criteria in Arizona yields inpatient rates of approximately 810 days per 1,000 person-years, 240 admissions per 1,000 person-years, and an average length of stay of 3.4 days per 1,000 person-years. Thus, Arizona's rate of inpatient hospital days is smaller than the national rate reported by HCFA of about 1,160 days per 1,000 Medicaid recipients. Admission rate comparisons show the opposite trend. AHCCCS' rate of admissions is larger than HCFA's rate of about 210 admissions per 1,000 Medicaid recipients. AHCCCS's average length of stay is significantly shorter than that of the Medicaid programs nationwide, 5.5 days. Because claims-level data from New Mexico are only reported net of crossover services, comparable data are not available for the New Mexico Medicaid program.

Utilization data that we obtained from state Medicaid programs detail service use by eligibility category. Total hospital days per 1,000 public assistance families in California (about 400) is smaller than the rate reported for AFDC beneficiaries in Arizona (about 590 per 1,000 person-years) and more than twice as small as that in New Mexico (about 980 per 1,000 AFDC person-years). Oregon AFDC beneficiaries report about the same rate of admissions as AHCCCS, approximately 170 per 1,000 AFDC person-years in Oregon versus 160 in Arizona. Oregon has fewer admissions than New Mexico, which has about 240 admissions per 1,000 AFDC person-years.

Medi-Cal program data is the only comparison source that we obtained that provides detailed use information for the SSI population. Medicaid days of care per 1,000 Medi-Cal public assistance aged, blind, and disabled eligibles (excluding dually-eligible beneficiaries), about 2,100, is larger than the AHCCCS rate of about 1,850 per 1,000 SSI person-years.[40] It is notably smaller than New Mexico's rate of about 4,450 days per 1,000 SSI person-years.

Survey Data — In comparing survey data pertaining to the general population to AHCCCS data for all rate categories, AHCCCS appears to have about the same rate of hospital days reported, larger admission rates, and shorter lengths of stay. New Mexico's rates of inpatient hospital days and admissions are much larger than the general population's from survey data, but its average length of stay is shorter. AHCCCS has approximately 790 days per 1,000 person-years, 240 admissions per 1,000 person-years, and an average length of stay of 3.3 days. New Mexico's rates are about 1,320 days per 1,000 person-years, 230 admissions per 1,000 person-years, and an average length of stay of 5.7 days.

The 1990 NHIS reports 110 discharges per 1,000 and an average length of stay of 6.3 days. Data from the 1991 NHDS show an average length of stay of 7.2 days. In the 1987 NMES data, length of stay for the general population averages 9.1 days. According to the AHA survey, hospital days in 1989 are approximately 800 per 1,000, admissions are approximately 125 per 1,000, and average length of stay is about 6.4 days.

The 1987 NMES reports an average length of stay of 9.2 days for non-institutionalized Medicaid beneficiaries. To mimic the NMES methodology, we calculated use rates for all AHCCCS beneficiaries regardless of whether or not they are covered by Medicare. (The same adjustment could not be made for New Mexico.) AHCCCS' average length of stay of 3.4 days is quite low in comparison to the national NMES data. Note that the NMES data are restricted to Medicaid beneficiaries enrolled for the entire year, while AHCCCS includes partial-year beneficiaries. We would expect, however, that taking only full-year enrollees would tend to decrease the NMES rate relative to a rate of use calculated on eligibilities of different lengths.

According to data from the 1991 HMO Industry Profile, AHCCCS has more than twice the number of inpatient days as compared to all enrollees in private HMOs (790 per 1,000 person-years versus 380 per 1,000). However, AHCCCS' rate for all eligibility groups is similar to the rate reported for the Medicaid population enrolled in private HMOs (760 per 1,000). Again, the admission rate per 1,000 is smaller for the comparison source (about 160 versus 240), and AHCCCS has a shorter average length of stay. If the HMO Medicaid rates are compared to AHCCCS' AFDC population, AHCCCS has fewer days and the same rate of admissions. New Mexico's rates are consistently larger than this comparison source.

Inpatient Hospital Services by Diagnosis — Two of the comparison data sources report inpatient hospital utilization rates by type of diagnosis [medical (including mental and medical diagnoses), surgical, and maternity]. Comparison information is only available for AFDC beneficiaries. Table 4-21 shows the number of days and admissions per 1,000 person-years and the average length of stay by data source.

AHCCCS and the Minnesota managed care Medicaid program have similar rates of days and admissions for medical and surgical inpatient hospital use. The rate of medical days per 1,000 AFDC person-years is a little larger in Arizona (300) than in Minnesota (260), but the rate of medical admissions shows the opposite trend (about 50 in Arizona versus 60 in Minnesota). Thus, Arizona's average length of stay (6.5 days) for medical admissions is more than two days longer than Minnesota's. The rates of surgical days (about 60 per 1,000 person-years in Arizona, 75 per 1,000 person-years in Minnesota) and admissions (about 15 per 1,000 person-years in each state) are nearly identical in the two states, as is length of stay (4.5 days).

Minnesota reports maternity rates per 1,000 female AFDC beneficiaries ages 10 to 49. On average, Minnesota has about 100 more maternity days per

Table 4-21

INPATIENT HOSPITAL UTILIZATION FOR AFDC BENEFICIARIES BY TYPE OF DIAGNOSIS: COMPARISON OF AHCCCS AND NEW MEXICO MEDICAID DATA WITH SELECTED MEDICAID DATA SOURCES

	AHCCCS Plan Data	New Mexico Medicaid Data	Minnesota Medicaid HMO Data	Oregon Medicaid Data
Date	FY91/92	FY91/92	CY92	1990/91*
Days (per 1,000 person-years)	303	505	263	N/A
Medical	63	83	76	N/A
Surgical	224	388	383+	N/A
Maternity				
Admissions (per 1,000 person-years)	47	57	64	51**
Medical	14	17	17	N/A
Surgical	100	162	153+	59
Maternity				
Average Length of Stay (days)	6.5	8.9	4.1	N/A
Medical	4.5	4.9	4.5	N/A
Surgical	2.2	2.4	2.5+	N/A
Maternity				

Source: Minnesota Medicaid HMO 2; Oregon Medicaid 6.
N/A Not Available
* July 1990 though December 1991
+ Minnesota rates for maternity are per 1,000 female enrollees age 10-49.
** Oregon admissions rate for medical admissions includes medical and surgical admissions.

1,000 person-years for this group than AHCCCS, about 380 days for Minnesota versus 280 days for AHCCCS. Maternity admissions per 1,000 person-years are closer across the two managed care programs, about 150 in Minnesota versus 140 in AHCCCS. Thus, the average length of stay for maternity hospital stays is a little longer in Minnesota than Arizona (2.5 in Minnesota and 2.0 in Arizona).

Fee-for-service Medicaid data are available for Oregon but only for admissions. Oregon's rate of medical/surgical admissions per 1,000 AFDC person-years (about 50) is slightly smaller than the rate for Arizona (about 60) and for New Mexico (about 70), but all of the rates are in the same range. Oregon's reported rate of maternity admissions is notably smaller than that reported for either Arizona or New Mexico.

Emergency Room

Table 4-22 presents rates of emergency room use by data source. All of the Medicaid data appear to be in the same general range, between 450 and 600 emergency room visits per 1,000 person-years. The Arizona and New Mexico data tend to be at the lower end of this range. However, rates of emergency room use for AHCCCS and New Mexico Medicaid beneficiaries are larger than those reported for the general population.

Comparison rates for Medicaid managed care programs are available for the AFDC population. Emergency room rates per 1,000 AFDC person-years in Ohio (540) and Minnesota (570) are larger than those for AFDC beneficiaries in AHCCCS (480) and New Mexico (460). Wisconsin's rate of 610 emergency room visits per 1,000 person-years is the largest shown in Table 4-22. However, Wisconsin's instructions to HMOs for reporting emergency room visits indicate that the aggregate total could include emergency room services billed on both a HCFA 1500 and a UB-92 form. Thus to the extent that a UB-92 records a room charge by the hospital and a HCFA 1500 records a physician service by the doctor for that same visit, a visit will be counted twice.

The 1987 NMES reports that the general population has 222 visits to hospital emergency departments per 1,000. The rate reported by the 1992 NHAMCS for the general population is a little larger, 357 per 1,000.

Table 4-22

EMERGENCY ROOM UTILIZATION: COMPARISON OF AHCCCS AND NEW MEXICO MEDICAID DATA WITH SELECTED DATA SOURCES

	Date	Units per 1,000 Person-Years
AHCCCS Plan Data		
All Eligibility Groups	FY91/92	491
ADFC	FY91/92	485
SSI	FY91/92	611
SOBRA	FY91/92	473
New Mexico Medicaid Data		
All Eligibility Groups	FY91/92	470
ADFC	FY91/92	464
SSI	FY91/92	545
SOBRA	FY91/92	445
Comparison Data		
Ohio Medicaid HMO (ADFC)	CY91	541
Minnesota Medicaid HMO (ADFC)	CY92	565
Wisconsin Medicaid HMO (AFDC)	CY92	614
NMES (General Population)	CY87	222
NHAMCS (General Population)	CY92	357

Source: Ohio Medicaid HMO 1; Minnesota Medicaid HMO 2; Wisconsin Medicaid HMO 3; NMES 9; NHAMCS 13.

Non-Institutional Services

Physician Services

Comparisons of physician service utilization are complicated by the lack of a standard definition of "physician service." In the data sources presented here, physician services sometimes include and sometimes exclude inpatient services, emergency room services, and hospital outpatient visits. Some data sources count only "face-to-face" encounters between a doctor and a patient; some count services provided by non-physicians; and others count telephone consultations. Whenever possible we have selected comparison rates that most closely match the definition that we used in generating the AHCCCS and New Mexico rates presented in this chapter.

Table 4-23 presents physician services utilization by data source. Important differences between the definitions of physician services are noted on the table. Overall, rates of physician service use appear to be generally consistent across data sources, accounting for definitional differences.

Medicaid Managed Care Data — Almost no differences in the amount of physician services used are found among AFDC beneficiaries enrolled in managed care programs.

Ohio's rate of 4.0 physician visits per person-year includes primary care physician encounters and specialist physician visits. Unfortunately, Ohio's documentation does not clearly define these categories and thus it is difficult to compare them directly with other sources. In general, Ohio seems to be in the same approximate range as AHCCCS when emergency room services (0.5 per person-year) and hospital visits (0.3 per person-year) are excluded from the AHCCCS total of 5.3 services for AFDC beneficiaries.

In contrast to Ohio's reporting instructions, Minnesota is very specific about what is reported as a physician service. Minnesota includes office visits, nursing home and home visits, consultations and some specialist

Table 4-23

PHYSICIAN VISITS: COMPARISON OF AHCCCS AND NEW MEXICO MEDICAID DATA WITH SELECTED DATA SOURCES

	Date	Services/Visits Per Person-Year	Notes
AHCCCS Plan Data			
All Eligibility Groups	FY91/92	5.9	All evaulation and management services
AFDC	FY91/92	5.3	
SSI	FY91/92	11.8	
SOBRA	FY91/92	5.6	
New Mexico Medicaid Data			
All Eligibility Groups	FY91/92	5.9	All evaluation and management services
AFDC	FY91/92	5.5	
SSI	FY91/92	9.3	
SOBRA	FY91/92	5.2	
Comparison Data			
Medicaid Managed Care Data			
Ohio Medicaid HMO (AFDC)	CY91	4.0	"Primary care physician encounters" and "specialist physician visits." Excludes emergency room services.
Minnesota Medicaid HMO (AFDC)	CY92	4.4	Evaluation and management services, excluding emergency room services and hospital visits. Some specialist visits included.
Wisconsin Medicaid HMO (AFDC)	CY92	2.7	Office visits, except preventive medicine; home care; and consultations.

Table 4-23 (Continued)

PHYSICIAN VISITS: COMPARISON OF AHCCCS AND NEW MEXICO MEDICAID DATA WITH SELECTED DATA SOURCES

	Date	Services/Visits Per Person-Year	Notes
Medicaid Fee-for-Service Data			
HCFA 2082	FY91	5.2	All evaluation and management services
Medi-Cal			
Families	CY91	3.4	All evaluation and management services
Aged, Blind, Disabled	CY91	6.8	All evaluation and management services
Oregon Medicaid (AFDC)	1990/91*	5.9	All evaluation and management services
Survey Data			
NHIS	CY90	5.5	Evaluation and management services except hospital inpatient visits.
NMES			
Medicaid+	CY87	6.5**	Office visits, consultations, emergency visits, and specialty-specific services. Excludes visits to non-physician medical providers.
General Population	CY87	4.1	Office visits, consultations, emergency visits, and specialty-specific services.
NAMCS	CY91	2.7	Office visits, consultations, and most specialty-specific services. Excludes hospital outpatient visits.
NAMCS	CY92	3.0	Office visits, consultations, and most specialty-specific services. Excludes hospital outpatient visits.

Table 4-23 (Concluded)

PHYSICIAN VISITS: COMPARISON OF AHCCS AND NEW MEXICO MEDICAID DATA WITH SELECTED DATA SOURCES

	Date	Services/Visits Per Person-Year	Notes
NHAMCS	CY92	0.6	Hospital based outpatient department and emergency department visits only.
HMO Industry Profile All Enrollees	CY91	5.5	Evaluation and management services except hospital visits. Excludes telephone contacts.
Medicaid++	CY91	6.4	Evaluation and management services except hospital visits.

Source: Ohio Medicaid HMO 1; Minnesota Medicaid HMO 2; Wisconsin Medicaid HMO 3; HCFA 2082 4; Medi-Cal 5; Oregon Medicaid 6; NHIS 7; NMES 9; NAMCS (CY 91) 11; NAMCS (CY 92) 12; NHAMCS (CY 92) 13; HMO Industry Profile 14.

* July 1990 through December 1991

+ Data for persons enrolled in Medicaid for the full year.

** Mean number of visits per person with at least one visit during the year.

++ The national HMO Medicaid enrollment is probably over 90% ADFC. However, no definitive statistics are available.

services (opthamology) in its definition and excludes physician emergency room services and hospital visits. It also reports separately the number of visits for mental health and chemical dependency services, which we added to the total. Note that mental health services were being phased into the AHCCCS program at this time. Minnesota's rate of 4.4 services per person-year is roughly comparable to AHCCCS' rate of about 4.5 physician services when emergency room services and hospital visits are excluded from the AHCCCS total.

Physician services reported by Wisconsin are limited to office visits, excluding those for preventive medicine; home care visits; and consultations. For CY 92, Wisconsin reports 2.7 physician visits per person-year. Summing AHCCCS rates for office visits (2.9), consultations (0.1), and home visits (0.0) yields a comparison rate of 3.0 physician visits per AFDC person-year. Given that AHCCCS' rate for office visits includes preventive medicine, the rates appear to be close in the two states.

Fee-for-Service Program Data — The national Medicaid population has about 5.2 physician visits per recipient, as reported by HCFA. As for inpatient hospital services, this rate includes crossover service use by dually-eligible beneficiaries. Using the same definition, AHCCCS has approximately 5.9 services per person-year.

Arizona and New Mexico AFDC beneficiaries, excluding crossovers, average about 5.3 and 5.5 physician services per person-year, respectively. These rates are larger than that of California Medi-Cal public assistance family eligibles, who average about 3.4 physician encounters per person-year. Oregon's AFDC population, which has about 5.9 services per AFDC eligible per year, has a slightly larger rate than that of AHCCCS and New Mexico.

Medi-Cal's public assistance aged, blind, and disabled population reports approximately 6.8 physician services per person-year. New Mexico's SSI population reports about 9.3 physician visits, which is less than AHCCCS' rate of about 11.8 visits.

Survey Data — None of the surveys included in Table 4-23 use the full range of evaluation and management services in reporting physician visits. The 1990 NHIS includes only ambulatory visits in its definition of physician services. Thus, inpatient hospital visits must be subtracted from the number of visits reported for AHCCCS and New Mexico in Table 4-23. There were 0.6 hospital visits per AHCCCS person-year and 0.8 per New Mexico person-year during the study period, yielding ambulatory visit rates of about 5.3 and 5.1 visits, respectively. These figures roughly match NHIS' rate of 5.5 visits per year for the general population. If compared to the AFDC population, however, the difference is somewhat greater (5.0 in Arizona, 4.9 in New Mexico).

The 1992 NAMCS reports about 3.0 visits (office visits, consultations, and most specialty visits) per year to office-based physicians. Summing office visits, consultations, and specialist visits yields 4.8 visits per person-year in Arizona and 4.6 visits per person-year in New Mexico. Thus, the NAMCS rate appears to be smaller than the rates in Arizona and New Mexico; however, NAMCS excludes hospital outpatient visits from its total.

Also available for 1992 is data from the NHAMCS. This survey reports the number of visits to hospital outpatient departments and emergency room departments. Adding the NHAMCS rate (0.6 visits per person) to that reported by the NAMCS for the same year yields a total rate of 3.6 visits per person for office visits, consultations, and most specialty visits, including hospital outpatient and emergency department visits. This rate can be compared to 5.3 visits per person-year in Arizona and 5.0 visits per person-year in New Mexico.

The 1987 NMES rate of physician services use for the general population is 4.1 visits per person. This survey includes office visits, consultations, emergency room services, and specialty-specific services in its physician visit definition. Thus, when hospital visits and nursing home and home visits are excluded from the AHCCCS and New Mexico data, the NMES rate is smaller than that reported for AHCCCS (5.2 per person-year) and New Mexico (4.5 per person-year). NMES data are also available for full-year non-institutionalized Medicaid beneficiaries. However, the rate of use of physician services is only calculated for those who use at least one physician service during the year.

According to GHAA, the 1991 rate of use of physician services by all enrollees in private HMOs is 5.5 per person and by all Medicaid enrollees in private HMOs is 6.4 per person-year. These rates, which exclude hospital visits, are slightly above that of all AHCCCS (5.3 per person-year) and New Mexico Medicaid beneficiaries (5.1 per person-year), excluding hospital visits. If compared to the AFDC population, the difference between the HMO Medicaid population and the AHCCCS and New Mexico Medicaid data becomes greater, given the smaller use rates reported for the Arizona and New Mexico AFDC beneficiaries (5.0 and 4.9 per person-year, respectively).

Ancillary Services

Comparison data on ancillary services were sought for this study. The number of appropriate comparison sources was more limited than for hospital and physician utilization. The sources that we obtained all pertain to the Medicaid populations in other states. Utilization rates for laboratory and radiology services are presented in Table 4-24. Note that rates for Wisconsin include outpatient hospital services typically reported on a UB-92 form and professional services typically billed on a HCFA 1500 form, while those for AHCCCS, New Mexico, and California are limited to professional services. Oregon's rates appear to be for professional services, although we could not locate a precise definition. Laboratory use rates shown in Table 4-24 are the number of tests (i.e., laboratory and non-laboratory tests) for Arizona and New Mexico. Laboratory tests make up approximately 90 percent of the total number of tests performed.

Laboratory procedures per 1,000 AFDC person-years are in the same general range (about 1,700 to 2,100) across all of the data sources except for

Table 4-24

LABORATORY AND RADIOLOGY UTILIZATION PER 1,000 PERSON-YEARS: COMPARISON OF AHCCCS AND NEW MEXICO MEDICAID DATA WITH SELECTED DATA SOURCES

	Date	Laboratory*	Radiology
AHCCCS Plan Data			
All Eligibility Groups	FY91/92	2,604	664
AFDC	FY91/92	2,176	567
SSI	FY91/92	5,320	1,756
SOBRA	FY91/92	2,820	583
New Mexico Medicaid Data			
All Eligibility Groups	FY91/92	2,063	804
AFDC	FY91/92	1,879	693
SSI	FY91/92	4,469	2,008
SOBRA	FY91/92	1,215	446
Comparison Data			
Wisconsin Medicaid HMO (AFDC)	CY92	2,095	1,250
Medi-Cal			
Families	CY91	1,032	504
Aged, Blind, Disabled	CY91	2,544	1,560
Oregon Medicaid (AFDC)	1990/91+	1,873	770

Source: Wisconsin Medicaid HMO 3; Medi-Cal 6; Oregon Medicaid 7.

* For AHCCCS and New Mexico, this is the total number of tests, of which approximately 90% are laboratory tests.

+ July 1990 through December 1991

Medi-Cal, which is at the low end of the spectrum. Rates for SSI beneficiaries are notably larger than those for AFDC beneficiaries. Arizona appears to have a larger rate per 1,000 SSI person-years (approximately 4,800) than either New Mexico (approximately 4,000) or California (approximately 2,500).

With the exception of Wisconsin, radiology utilization for AFDC beneficiaries ranges from approximately 500 services per 1,000 in California to 770 services per 1,000 in Oregon, with Arizona (570) and New Mexico (690) falling in the middle of that range. Wisconsin's rate of 1,250 per 1,000 AFDC person-years is significantly larger than the other rates reported. Rates for the SSI population are much greater than those for the AFDC population. The AHCCCS program has approximately 1,750 services per 1,000 SSI person-years, the New Mexico Medicaid program has about 2,000 services per 1,000 SSI person-years, and Medi-Cal has about 1,560 services per 1,000 for public assistance aged, blind, and disabled eligibles.

Summary and Policy Implications

This chapter examines the utilization of services by acute care beneficiaries in AHCCCS and the New Mexico Medicaid program. The study examines utilization in FY 91 and FY 92 for a 5% random sample of beneficiaries. AHCCCS is a statewide capitated managed Medicaid program that has been in existence since October 1982. Beneficiaries choose or are assigned to one of the acute care plans in their county of residence. Plans receive a capitation payment for each beneficiary. Capitation amounts vary by plan, category of eligibility, and county. New Mexico represents a typical Medicaid program. A traditional fee-for-service program in the first year of study, by the second year 39% of the person-years of coverage in New Mexico are for beneficiaries enrolled in PCCM arrangements (43% of AFDC person-years, 26% of SSI person-years, and 41% of SOBRA person-years).

Utilization rates appear to behave as might be expected when comparing a Medicaid managed care program against a fee-for-service program, except for the SOBRA eligibility group. This group is made up of considerably fewer pregnant women in New Mexico than in Arizona. Although we expected similar distributions in both states, New Mexico's policy of restricting coverage to pregnancy-related services only for pregnant women with incomes greater than the federal poverty level caused us to exclude this group from the analysis.

Aside from the SOBRA group, comparisons between Arizona and New Mexico are more predictable. The number of hospital days is smaller in Arizona (0.59 per AFDC person-year in Arizona versus 0.98 per AFDC person-year in New Mexico; 1.83 per SSI person-year in Arizona versus 4.47 per SSI person-year in New Mexico). The average number of procedures is also smaller in Arizona than New Mexico (0.94 per AFDC person-year in Arizona versus 1.23 per AFDC person-year in New Mexico; 1.33 per SSI person-year in Arizona versus 2.66 per SSI person-year in New Mexico), as is the number of imaging services (0.57 per AFDC person-year in Arizona versus 0.69 per AFDC person-year in New Mexico; 1.76 per SSI person-year in Arizona versus 2.01 per SSI person-year in New Mexico). Evaluation and management services are about the same in Arizona (5.3 per person-year) and New Mexico (5.5 per person-year) for AFDC beneficiaries and larger in Arizona for SSI beneficiaries (11.8 per person-year versus 9.3 per person-year).

Table 4-25 examines the average dollars of use by acute care beneficiaries in AHCCCS and the New Mexico Medicaid program by type of service. Note that dollars are the numbers reported in the allowed charges fields in the data received from the two state programs. In New Mexico, it is the amount allowed by the program for the service provided. In Arizona, it is the amount that AHCCCS would allow if the service were provided in the fee-for-service part of the program. Thus, the field should be considered an intensity of use measure.

What is of interest is the correspondence of the total dollars calculated for AFDC beneficiaries and the relative similarity for SSI beneficiaries. In AHCCCS, the average amount was $1,092 per person-year for an AFDC beneficiary and $3,564 per person-year for an SSI beneficiary. The dollar amounts in New Mexico were very close to those in Arizona for AFDC

Table 4-25

AVERAGE TOTAL DOLLARS OF USE PER PERSON-YEAR BY TYPE OF SERVICE, STATE, AND ELIGIBILITY GROUP

	Arizona		New Mexico	
	AFDC	SSI	AFDC	SSI
Institutional				
Inpatient	452	1,900	557	2,481
Outpatient	180	558	194	503
Nursing Home	0	24	0	1
Home Health	0	1	6	79
Non-Institutional				
Evaluation and Management	187	400	147	260
Procedures	121	267	84	171
Maternity	40	9	21	6
Tests	27	78	21	56
Imaging	25	101	24	89
Other	59	215	66	335
HCBS	1	11	0	0
Total	1,092	3,564	1,120	3,981

beneficiaries ($1,120 per person-year rather than $1,092 per person-year) and 12% larger for SSI beneficiaries.

In general, New Mexico experienced a larger percentage of its expenditures for institutional services and a smaller percentage for non-institutional services than were experienced in Arizona. This is consistent with the distribution of resources that would be expected in a managed care program as compared to a fee-for-service program.

In addition to examining New Mexico program data, we sought comparison data from other sources: Medicaid managed care programs, Medicaid fee-for-service programs, and general population surveys. This chapter reviews information collected on data available from Medicaid managed care programs. Data collected from the programs include: information on their organization and structure, encounter data reporting requirements, and state reported uses for the data collected. We found only three sources with data that we could use for comparison with AHCCCS: Minnesota, Ohio, and Wisconsin. All of these data are from aggregate reports collected from the health plans by the three states.

Lack of data on the part of Medicaid managed care programs should be an area of concern not only because it represents an unfulfilled state requirement but also because of its critical importance in managing these programs. Encounter data are necessary for monitoring utilization and access, for financial analyses and rate setting, for quality of care review, and for overall program planning. States seem to be far behind in their interest in assuring that such data are available. In addition, little leadership and assistance has been available from the federal government to set national standard definitions and to provide technical assistance in achieving functioning data systems. If managed care is to be given an opportunity to be a success in Medicaid, activities of this type that are necessary to create a workable managed care infrastructure are of substantial importance.

Besides reviewing data from Medicaid managed care programs, we also secured data from the Medicaid fee-for-service program and survey data from the National Health Interview Survey, National Hospital Discharge Survey, National Medical Expenditure Survey, American Hospital Association Survey, National Ambulatory Medical Care Survey, National Hospital Ambulatory Medical Care Survey, and the Group Health Association of America's HMO Industry Survey.

In general, review of the data from other sources is consistent with the pattern hypothesized for managed care and found in the Arizona and New Mexico comparison above. Arizona utilization rates and rates from other Medicaid managed care plan data tend to be smaller with respect to the number of inpatient hospital days and approximately the same or a little larger with respect to physician services. Emergency room services, laboratory services, and imaging services are often found to have smaller utilization in managed care systems. While our findings do not necessarily support this pattern of use, neither do they refute it. We were not able to locate enough comparison sources reporting this type of information to have very conclusive results. Moreover, variation seems to exist as to which services are counted in these categories across data sources.

Utilization rates that are not large enough as well as those that are too large are cause for concern. Consumer advocates often argue that managed care needs to be closely monitored for potential underutilization of services. They are suspicious that as financial incentives tend to favor minimal use of services, there is danger that individuals may not get the services needed. Our findings indicate that there seems to be no real evidence for this phenomenon in AHCCCS. Average consumption of services seems robust. Economies seem to be in expected areas, especially in reductions in hospital stays. In an analysis based on the submission of encounter data, submission that some assume results in underreporting, it is especially unlikely that there is widespread underutilization of services. If underreporting exists it would result in more utilization for Arizona, which would in turn further reduce the possibility of underutilization.

5. SELECTION BIAS IN THE ACUTE CARE PLANS

Introduction

Policymakers and researchers have long recognized the possibility of selection bias as an important problem in health services markets where beneficiaries are offered a choice among plans. Although differences between plans in the expected health care costs of their enrolled populations may simply reflect sorting of beneficiaries into plans that best satisfy their preferences, it is important to monitor and, if necessary, adjust payments for selection effects if competition between capitated plans is intended to promote efficiency. While the seriousness of the problem created by the potential for selection bias is widely acknowledged, it has been difficult to develop satisfactory indicators of its existence and adequate ways to correct for it.

To fully evaluate bids offered by competing plans, program administrators ideally would want information about the extent to which rate differences reflect variation in enrolled population risk or in plan performance along dimensions such as efficiency, accessibility of services, or quality of care. Failure to adjust payment rates for underlying risk differences creates an incentive for inefficient competition to enroll the healthiest population and may cause access problems for individuals perceived as high risk. Rates that do not compensate for selection bias can compromise the financial stability of plans subject to adverse selection, while bestowing unintended windfalls on those experiencing favorable selection.

This study exploits the natural experiment created by the random assignment of certain beneficiaries to a plan to evaluate selection bias in the Arizona Health Care Cost Containment System (AHCCCS). Plan effects, measured by utilization differences in a randomly assigned group, are used to differentiate the effects of plan characteristics from those of selection on variation in utilization across plans. AHCCCS presents an interesting evaluation opportunity, both methodologically and because of its context as a Medicaid program where there is choice among prepaid health plans (PHPs). Selection bias may be less pronounced in programs with mandatory enrollment in a PHP than in those where beneficiaries are offered a voluntary choice between prepaid and fee-for-service care. This type of program setting is relatively unexplored in the selection bias literature, but of growing policy importance.

This chapter begins with a review of the previous literature related to selection bias in Medicaid populations and in the choice among PHPs. Next the methodology is outlined, including the quasi-experimental design and the regression model used in these analyses to evaluate selection bias. The data, study sample, and variables included in the model are then presented. The results of the analyses follow. The chapter concludes with a summary of the findings and a discussion of their policy implications for AHCCCS and other Medicaid programs.

Evidence From Previous Studies of Selection Bias

Beneficiaries offered a choice among health plans are assumed to select the one that maximizes their expected utility. A major hypothetical source of selection bias, financial risk-vulnerability,[41] is unlikely to influence the choice among PHPs or decisions in populations, such as Medicaid beneficiaries, where cost-sharing is not required. Instead, delivery system characteristics are expected to be the main factors determining enrollment decisions.[42]

It is assumed that sicker people are more likely to have strong existing ties to a physician and will select a plan in order to maintain this relationship. In the private sector, this is expected to create adverse selection in independent practice association (IPA) model plans.[43] However, the Medicaid population may not have received care from community physicians in the past and, instead, plans affiliated with public hospitals or other traditional indigent care providers may be selected against. Further, in a low-income population it is not reasonable to infer that people without a regular source of care are healthier.

Access considerations may also dictate plan choice. For example, staff and group model health maintenance organizations (HMOs) with integrated delivery sites may attract sicker enrollees than plans with multiple delivery sites. Plans may also influence beneficiary enrollment decisions through their location choice, the design of their service package, staffing patterns, and marketing activities. Although the AHCCCS Administration controls plan marketing activities and it is unlikely that plans enrich the package of covered services, plans can still exert subtle influence by the amenities offered at delivery sites or the accessibility of certain specialty services, for example. Finally, plans with a reputation for a conservative practice style may enroll members with a low propensity to use services. Even if health risks are uniformly distributed, these plans will benefit from favorable selection.[44]

There are no previous studies that directly evaluate selection bias in the AHCCCS program. The most relevant information comes from a survey of a sample of Aid to Families with Dependent Children (AFDC) and Supplementary Security Income (SSI) AHCCCS beneficiaries.[45] The survey found few differences between IPA and non-IPA plan enrollees in terms of sociodemographic characteristics, perceived health status, bed or limited activity days, and symptoms reported in the past 12 months. Of the enrollees who chose a plan, thirty percent in IPA and thirty-six percent in non-IPA plans based their choice on factors associated with a prior provider-patient relationship.

The extensive selection bias literature focuses mainly on the choice between fee-for-service plans and PHPs in the Medicare and employed populations.[46] Evidence about selection effects in Medicaid and in the choice among PHPs is considerably more sparse and, in general, is of limited relevance to the AHCCCS program. Nearly all Medicaid studies have looked at the choice between PHPs and fee-for-service Medicaid.[47] The exception was one site studied by Freund and colleagues[48] where AFDC beneficiaries were offered a choice among a variety of PHPs; no evidence of selection bias was found in this site. Other studies of the choice among PHPs have been based in employed populations where the expected sources of selection bias (particularly, the roles of a prior physician relationship and risk-vulnerability) may differ substantially from those in Medicaid populations. Relative to closed-panel plans, these studies found adverse selection in IPA and open-panel plans attributable to a pre-existing relationship with a physician, which in employed populations is associated with poorer health status.[49]

Methodology

Evaluation Design

The demand for medical care by an individual enrolled in a given health plan depends on the need for and propensity to use care, as well as the plan's performance and characteristics. Payers would like to compensate health plans for variation in utilization associated with the enrolled population's risk and propensity to use services, but not for variation associated with plan differences. However, distinguishing the effects of these two sets of factors is difficult because the factors that determine the demand for care may simultaneously determine the choice of plan. Simple estimation of the demand for care as a function of plan and enrollee characteristics will yield biased and inconsistent results if the endogeneity of this relationship is not taken into account.

This evaluation of selection bias in AHCCCS addresses this problem using the natural experiment created by the AHCCCS policy of randomly assigning certain beneficiaries to a plan. While beneficiaries are generally allowed to select a plan, in practice a large proportion are assigned, including: 1) those who do not exercise their option to choose within 16 days of being mailed an enrollment choice letter and 2) Medically Needy/Medically Indigent (MN/MI) eligibles, who are not permitted to choose and are immediately assigned to a plan when they become eligible. In some cases beneficiaries are manually assigned, usually to ensure enrollment in the same plan as other family members. (For example, newborns are assigned to their mothers' plans.) The remainder are randomly distributed among the contracting plans that serve their ZIP code[50] using a computerized allocation algorithm that is defined in the request for proposals to which plans respond. The algorithm allocates proportionately larger shares to plans with lower capitation rates within a bid rate category.[51]

Because the assigned population is randomized across plans, unbiased estimates of plan effects can be obtained from utilization differences between plans within this group. Plan effects measured in the randomized group, therefore, can be used to control for the contribution of plan performance to interplan variation in utilization by beneficiaries in the non-random group.[52] Remaining differences between plans in the utilization of non-randomized beneficiaries is attributed to selection effects.

This evaluation strategy is illustrated in the following matrix, which classifies beneficiaries by plan and random assignment status, where M measures utilization of medical care. For simplicity, a choice between only two plans is presented.

	Plan 1	Plan 2
Random	M_{RP1}	M_{RP2}
Non-random	M_{NRP1}	M_{NRP2}

Plan 2 experiences adverse selection if $(M_{NRP2}-M_{NRP1})-(M_{RP2}-M_{RP1})>0$. The first term represents the gross utilization difference between non-randomized beneficiaries in the two plans, due to both plan and selection effects, while the second term is the difference in plan effects. The "difference-in-differences" is an estimate of selection effects alone.

Regression Model

The evaluation design described in the preceding section can be represented by the following model:

$$(1)\ M_i = f(\mathrm{PLAN}_{ij}, \text{NON-RANDOM}_i, \text{NON-RANDOM}_i * \mathrm{PLAN}_{ij}),$$

where PLAN is a vector of dummy variables describing plan j that equal 1 if person i is enrolled in plan j, NON-RANDOM is a dummy variable that equals 1 if person i is not randomly assigned, and NON-RANDOM*PLAN is a vector of dummy variables representing the interaction of NON-RANDOM and PLAN.

Separate regressions are estimated for AFDC-eligible adults,[53] AFDC-eligible children, and the Children's Care Program (CCP). CCP includes Eligible Assistance Children (EAC), Eligible Low Income Children (ELIC), and children eligible under the Sixth Omnibus Reconciliation Act (SOBRA). Total selection effects are measured by the coefficient on NON-RANDOM*PLAN$_j$; if the coefficient is greater for plan j than for plan k, then plan j experiences adverse selection relative to plan k.

This selection measure is refined in a second version of the model which adds Z_i, a vector of dummy variables for demographic and other characteristics of person i believed to affect utilization, to the variables described in equation (1). The covariates in Z can be interpreted as potential risk adjusters; to the extent that the distribution of these variables among non-randomized beneficiaries differs across plans, their coefficients measure selection on observable characteristics. In this version of the model, the coefficient on NON-RANDOM*Plan$_j$ measures remaining selection due to differences between plans in the unobservable characteristics of non-randomized beneficiaries.

Utilization is estimated using a two-part model.[54] The first equation is a logistic regression for the probability of any service use, while the second is a linear regression on the logarithmic transformation of medical expenses for those with some utilization:

$$(2)\ \Pr(M_i>0) = \exp(\chi_i\alpha)*(1+\exp(\chi_i\alpha))^{-1} = P_i$$

and

$$(3)\ \ln(M_i|M_i>0) = \chi_i\beta + \epsilon_i,$$

where χ_i is a row vector of the explanatory variables described in equation (1), α and β are column vectors of parameters, and $\epsilon_i \sim N(0,\sigma^2)$.

The logarithmic transformation reduces both skewness in the distribution of medical expenses and the influence of large value observations. While understating the effect of very expensive enrollees is undesirable to the extent that adverse selection may be manifest in a small percentage of high cost cases, estimates that downweight extreme observations are more robust in analyses based on relatively small samples.[55] Expected medical expenses are estimated from the two-part model as:

$$(4)\ E(M_i|\chi_i) = P_i{*}\exp(\chi_i\beta)\phi,$$

where ϕ is the smearing estimate[56] of the residuals from equation (3), which is used to retransform expenditures from the logarithmic scale back to the original dollar scale.[57] For retransformed predictions using the smearing factor to be consistent, the distribution of the error term must be independent of the explanatory variables included in the regression.[58] This assumption was tested for the variance of the error term by regressing the logarithm of the squared error on the independent variables included in the model.[59] Based on the results of these tests, a constant smearing factor was used for the AFDC adult and CCP children models; different smears were applied by age group in the versions of the AFDC children model that included the vector of potential rate adjusters and by randomization status in the versions that did not.

Because observations represent utilization over varying time periods (see the following section on data for a description of the sample and the dependent variable), in all analyses each observation was weighted by the length of enrollment span to correctly estimate average annual costs.[60] The White test was used to check whether this weighting procedure induced heteroskedasticity in the lognormal regressions. With the exception of the AFDC children regression without the vector of potential rate adjusters, the null hypothesis of homoskedasticity was rejected in all of the lognormal regressions.[61] White standard errors, which are consistent when the error is heteroskedastic, were therefore calculated for these regressions.

The effects of dummy variables on medical expenditures are estimated by taking the weighted average over the entire sample of the difference between predicted expenditures, based on equation (4), with a given dummy variable set equal to one for all sample members and with the dummy variable set equal to zero for all sample members. All other variables are kept at their observed values.[62] Standard errors are estimated using the delta method. The joint significance of explanatory variables is estimated using a Wald test.

This model for estimating selection effects relies on two identifying assumptions:

- plan enrollment is exogenous for the assigned population, and
- plan effects do not differ for the random and non-random populations.

The random assignment process should support the exogeneity of plan enrollment assumption. The assumption of uniform plan effects is subject to the most serious challenge because beneficiaries that choose a plan are likely to differ substantially from those that are assigned.

Randomization was first checked by comparing the unweighted distribution of observable demographic characteristics in the randomized population across plans. There were no significant differences (at $p<.05$) between plans in the distribution of randomized AFDC adults or AFDC children by age, gender, ethnicity, language, or receipt of cash benefits. In the randomized CCP group, significant differences between plans were found in the proportion between the age of one and six and in the proportion for whom language is not reported. The distribution of characteristics across plans was less similar when observations were weighted by the length of enrollment span.[63] The distribution differed significantly across plans by all observable variables except receipt of cash benefits among AFDC adults; by ethnicity, language, and receipt of cash benefits among AFDC children; and by language and the percentage between the age of six and twelve among the CCP group.[64] While the versions of the regressions that include covariates control for observable characteristics, estimated plan effects will be biased to the extent these differences indicate that unobserved characteristics may not be uniformly distributed in the randomized CCP population.

In this model, uniform plan effects imply that percentage differences in utilization attributable to plan characteristics are the same for all types of enrollees. Although the validity of this assumption cannot be tested directly, its reasonableness was assessed in two ways. First, plan dummy variables were interacted with variables representing observed demographic characteristics of sample members. For example, a coefficient on the interaction of plan with gender that is insignificant supports the hypothesis that plan effects do not differ for males and females. Second, the AFDC adult model was estimated including both AFDC and MN/MI adults in the random group. MN/MIs, who often become eligible because of their medical expenses, are generally high users of care, while beneficiaries who fail to choose are hypothesized to be low users. If plan characteristics do not influence the utilization of the healthy and the sick differently, then the interaction of plan variables and a dummy variable for MN/MIs should again be insignificant.

Chi-square tests for the joint significance of interactions between plan and demographic variables failed to reject the null hypothesis that the coefficients for these variables are jointly equal to zero (p=.998 for AFDC adults, p=.257 for AFDC children, and p=.243 for CCP children). In the model for AFDC adults that used both randomly-assigned AFDC and MN/MI enrollees to estimate plan effects, the interactions of MN/MI with the plan dummy variables also were jointly insignificant (p=.158). The results of these tests are consistent with the identifying assumption that randomly assigned enrollees can be used to control for the effect of plan performance on utilization.

Data

Data Sources

The evaluation uses data for the AHCCCS acute care program for the ninth and tenth program years, October 1, 1990, through September 30, 1992. Data are from encounter files, as well as eligibility, enrollment, and demographic files. Records from these files were linked by the beneficiary identification number.

Utilization data include all reported encounters for AHCCCS-covered services, except drugs, that began during the study period and that occurred during a span of enrollment in a capitated plan.[65] Expenditures are allowed charges assigned to encounters based on the AHCCCS payment rates for fee-for-service providers.[66]

Construction of the Sample

Data were collected for a five percent random sample of acute beneficiaries with some AHCCCS eligibility during the study period. Person-level records that summarize utilization during an enrollment span were constructed. An enrollment span was defined as a spell of continuous enrollment[67] during the study period in the same plan, county, and rate category.

The study sample was limited to beneficiaries in Maricopa County enrolled in a plan under a capitated contract.[68] Other counties were excluded because sample sizes were too small to estimate effects at the plan level reliably. As of September 1, 1991, 50 percent of all AHCCCS acute beneficiaries and 55 percent of those beneficiaries in an acute plan resided in Maricopa. Seven contracts were awarded in Maricopa during the study period. Two plans, with approximately four percent of acute beneficiaries enrolled in a plan in Maricopa, did not serve the entire county and were dropped from the analysis.[69]

Selection bias was evaluated in three eligibility categories--AFDC adults, AFDC children, and CCP children.[70] The AFDC and CCP samples were analyzed separately because plans receive different capitation rates for these groups. Separate regressions were estimated for AFDC adults and children because their utilization patterns were expected to differ substantially. The analysis omitted beneficiaries who re-enrolled in their previous plan after moving from a different county or after an enrollment break greater than seven days.[71] Finally, the analysis excluded four beneficiaries with allowed charges net of reinsurance and deferred liability payments[72] that were less than zero and thirteen beneficiaries for whom ethnicity was not reported.

Variables Included in the Model

The dependent variable in the logistic regressions is a dummy variable, user, which equals one if a beneficiary had positive allowed charges during an enrollment span and zero otherwise. The dependent variable in the conditional expenditure equation is the logarithm of annualized allowed charges.[73] Allowed charges were converted to an annualized basis because utilization was observed during enrollment spans of varying duration.[74]

Annualization implies that utilization rates are constant over time, which is unlikely to be the case. However, because capitation payments to the plans are also constant over time, in this analysis it is reasonable to model expenditures using this assumption. If utilization declines over time, for example, a plan whose beneficiaries have longer enrollment spans will have smaller annualized expenditures than a plan with shorter beneficiary enrollment spans (all else being equal). As a result, the plan with longer enrollment spans will be relatively overpaid. The effect of the longer spans will be captured in the analysis as a source of favorable selection. An alternative hypothesis is that utilization increases over time, perhaps because beneficiaries become more adept at accessing services.

Independent variables in all versions of the regressions include a set of plan dummy variables; a dummy variable, non-random, which indicates that the beneficiary was not randomly assigned to a plan; and a set of interactions between plan dummy variables and non-random. Selection effects are measured by the interaction terms. In the version of the model that includes covariates, a set of dummy variables for demographic characteristics and for the duration of enrollment are included as potential rate adjusters.

Selection on observable characteristics is measured by the demographic and enrollment duration variables; estimates of remaining selection effects due to unobservable characteristics are based on the non-random dummy variable and its interaction with plan variables. Definitions of explanatory variables are shown in Table 5-1.

The non-random dummy variable is derived from a variable in the AHCCCS enrollment file that indicates enrollment type.[75] As described previously, most beneficiaries that do not choose a plan are randomly assigned using a computer algorithm, although some are manually assigned. Due to a conversion in the AHCCCS information system that occurred during the study period, it is not possible to consistently distinguish manually assigned beneficiaries from those who chose their plan; however, randomly assigned beneficiaries can be identified reliably. Therefore, a value of one for the variable non-random indicates that the beneficiary either chose or was manually assigned to a plan.[76] Because manually assigned beneficiaries are not differentiated from choosers, the results of this analysis are conservative estimates of selection effects.

Demographic variables include age, gender, ethnicity, and language. Age is reported at the mid-point of the enrollment span. AFDC children and CCP regressions include an additional age variable that indicates whether the beneficiary was a newborn at the beginning of the enrollment span. Because language was not reported for a large percentage of observations, an additional dummy variable indicates whether language is missing.[77] Regressions for AFDC adults and children also include an indicator of eligibility for cash benefits, which is used as a proxy for income; CCP beneficiaries are not eligible for cash benefits.

Variables for enrollment duration include a set of dummy variables for the length of the enrollment span, as well as a variable for the length of time since the beneficiary first enrolled in the plan. The enrollment span, which was defined previously, is the length of time over which utilization is observed. The additional enrollment duration variable measures the time from the first date of enrollment in a plan through the end of the enrollment span.

Table 5-1

DEFINITIONS OF INDEPENDENT VARIABLES

Variable	Definition
Plan 2	=1 if enrolled in Plan 2
Plan 3	=1 if enrolled in Plan 3
Plan 4	=1 if enrolled in Plan 4
Plan 5	=1 if enrolled in Plan 5
Non-random	=1 if not randomly assigned
Non-random*Plan 2	=1 if not randomly assigned and enrolled in Plan 2
Non-random*Plan 3	=1 if not randomly assigned and enrolled in Plan 3
Non-random*Plan 4	=1 if not randomly assigned and enrolled in Plan 4
Non-random*Plan 5	=1 if not randomly assigned and enrolled in Plan 5
Female	=1 if female
White	=1 if white
English	=1 if English-speaking
Language Missing	=1 if language not reported
Cash*	=1 if eligible for cash benefits
Newborn**	=1 if age at beginning of enrollment span ≤ 14 days
Age > 1**	=1 if age at mid-point of enrollment span > 1
Age > 6**	=1 if age at mid-point of enrollment span > 6
Age > 12**	=1 if age at mid-point of enrollment span > 12
Age > 28***	=1 if age at mid-point of enrollment span > 28
Months > 1	=1 if length of enrollment span > 1 month
Months > 4	=1 if length of enrollment span > 4 months
Months > 7	=1 if length of enrollment span > 7 months
Months > 10	=1 if length of enrollment span > 10 months
Months > 14	=1 if length of enrollment span > 14 months
Months > 18	=1 if length of enrollment span > 18 months
Months Enrolled >10	=1 if length of time between date first enrolled in plan through end of enrollment span > 10 months

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Note: The default value for all variables is zero. The omitted plan is Plan 1. The omitted age category for AFDC adults is age between 18 and 28; the omitted age category for children is age one or less. The omitted enrollment span length is one month or less.

* AFDC adults and children regressions only.

** AFDC children and CCP regressions only.

*** AFDC adults regressions only.

This variable differs from the enrollment span variables in that the begin date is not constrained by the start of the study period or by changes in rate code.

Results

AFDC Adults

Characteristics of the Sample

Descriptive statistics on the AFDC adult sample are shown in Table 5-2.[78] The weighted average probability of having some service use during an enrollment span was .80. The mean annualized expenditure for all AFDC adults was $1,757; for those with positive expenditures the mean was $2,187.

Over one-third of the AFDC adult sample was enrolled in Plan 2; Plan 4 enrolled nearly one-quarter. Only six percent of the sample was in Plan 5, which has participated in AHCCCS for the shortest time of the plans included in the analysis. Two-thirds of the AFDC adult sample was not randomized to a plan. The distribution of enrollees by random assignment status differed substantially by plan. More than three-quarters of the enrollees in Plan 2 and Plan 4 were in the non-randomized group. In contrast, less than half of the enrollees in Plan 1 and Plan 5 were non-randomized.

Nearly all of the sample members were female[79] and eligible for cash benefits. The sample was roughly equally divided between beneficiaries over the age of 28 and those under, and between whites and other ethnicities. As described previously, it is likely that language is reported incorrectly given the surprisingly low percentage of English-speaking sample members. The unweighted mean enrollment span length was 8.3 months; less than two-fifths were enrolled in their plan for more than ten months.

Table 5-2

CHARACTERISTICS OF AFDC ADULT SAMPLE

Variable	Mean	Standard Deviation
Plan 2	.363	.481
Plan 3	.177	.382
Plan 4	.225	.417
Plan 5	.063	.244
Non-random	.670	.470
Non-random*Plan 2	.289	.453
Non-random*Plan 3	.103	.303
Non-random*Plan 4	.173	.378
Non-random*Plan 5	.026	.158
Female	.901	.299
White	.507	.500
English	.168	.374
Language Missing	.177	.381
Cash	.952	.214
Age > 28	.523	.499
Months > 1	.996	.065
Months > 4	.927	.261
Months > 7	.738	.440
Months > 10	.640	.480
Months > 14	.471	.499
Months > 18	.360	.480
Months Enrolled > 10	.695	.461
Number in Sample	2,671	

Regression Results

Effects of explanatory variables on expected annualized expenditures [equation (4)] are shown in Table 5-3. These effects reflect the combined impact of parameter estimates from the probability of use and conditional expenditure regressions. Parameter estimates from these regressions are presented in Table 5S-1 and Table 5S-2.

The first two columns of Table 5-3 are results from the model that includes only plan, randomization status, and their interaction as explanatory variables. Controlling for selection effects, expected expenditures are lowest in the omitted plan (Plan 1). Although all four plan coefficients were positive, only the plan effects comparing Plan 3 and Plan 4 to Plan 1 were significant and plan effect variables were jointly insignificant at p=.09. No other plan effects were significantly different from each other in pairwise plan comparisons.[80] Non-randomized beneficiaries had higher expected expenditures than randomized beneficiaries in all plans except Plan 5; however, the difference was only statistically significant in Plan 1 and Plan 2. Coefficients on the interaction of plan variables and non-random, which provide an aggregate measure of selection effects, were jointly insignificant (p=.21). The only evidence of significant selection effects favors Plan 5 relative to Plan 1. Selection favoring Plan 5 relative to Plan 2 was significant at p<.08.[81]

The third and fourth columns of Table 5-3 present results when selection is decomposed into effects attributable to observable and unobservable characteristics. Estimated plan effects are generally similar to those obtained from the model without observable beneficiary characteristics and remain jointly insignificant (p=.11). This similarity is expected if beneficiary characteristics in the randomized population are orthogonal to plan. The effect for Plan 3 is less precisely estimated and no longer significant at p<.05. After controlling for observable characteristics, estimated selection effects attributable to differences in unobservable beneficiary characteristics were similar to the total selection measures from

Table 5-3

FACTORS AFFECTING ANNUALIZED MEDICAL EXPENDITURES FOR AFDC ADULT BENEFICIARIES

	Excluding Covariates		Including Covariates	
Variable	Effect	Standard Error	Effect	Standard Error
Plan 2	341.58	276.37	169.88	274.79
Plan 3	626.80**	310.45	594.00***	322.75
Plan 4	1,018.87**	442.48	996.59**	444.44
Plan 5	327.55	343.21	453.46	385.99
Non-random	994.34*	346.54	1,032.36*	368.79
Non-random*Plan 2	-371.92	440.36	-385.67	452.71
Non-random*Plan 3	-568.16	546.41	-536.30	576.82
Non-random*Plan 4	-670.44	587.38	-746.10	602.00
Non-random*Plan 5	-1,211.22**	516.15	-1,101.04***	582.76
Female	---	---	596.45**	245.41
White	---	---	313.93***	166.65
English	---	---	784.02*	275.46
Language Missing	---	---	-248.01	204.20
Cash	---	---	-869.15***	503.57
Age > 28	---	---	-714.34*	167.08
Months > 1	---	---	-801.71	1,125.63
Months > 4	---	---	17.81	186.13
Months > 7	---	---	-42.39	187.16
Months > 10	---	---	920.87*	336.11
Months > 14	---	---	-408.75	294.72
Months > 18	---	---	969.96*	333.81
Months Enrolled > 10	---	---	-665.38	431.37
χ^2, Joint Significance of Plan Effects	8.15***		7.65	
χ^2, Joint Significance of Non-random*Plan	5.92		4.05	

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* Statistically significant at $p < .01$
** Statistically significant at $p < .05$
*** Statistically significant at $p < .10$

the model without covariates, although selection favoring Plan 5 relative to Plan 1 is now only significant at $p<.06$.[82] The interactions of plan with non-random were again jointly insignificant ($p=.40$). Significant differences between the expected expenditures of randomized and non-randomized enrollees in Plan 1 and Plan 2 attributable to differences in unobservable characteristics remained after observable characteristics are held constant.

Gender, language, and age were the only significant predictors of annualized expenditures among the demographic variables in the model. Being female and English-speaking had positive effects on expected expenditures, whereas being over the age of 28 reduced expenditures. Of these characteristics, there were significant differences between plans in the proportions of non-randomized beneficiaries who were female and over the age of 28. The effects of variables for the length of the enrollment spell are mainly insignificant and did not follow a consistent pattern. There is some evidence that beneficiaries with the longest enrollment spans have higher annualized expenditures and the share of non-randomized beneficiaries with long enrollment spans differed significantly by plan. While the effect of having been enrolled longer than ten months is negative, suggesting that utilization is highest during the first months that a beneficiary is enrolled in a plan, it is not significant.

Comparison of Plans' Predicted Medical Expenditures

Predicted medical expenditures for randomized AFDC adult beneficiaries are presented in Table 5-4.[83] Expenditures were predicted for each randomized beneficiary in the sample, alternately placing the beneficiary in each plan (i.e., by setting the appropriate plan dummy variable to one). The mean predicted expenditure for each plan was then calculated, as well as the simple average of the plan means.

There was considerable variation across plans in predicted annualized expenditures for the randomized population. Plan 1 was the lowest cost plan with predicted expenditures 30 percent below the average across plans. The

Table 5-4

PREDICTED ANNUALIZED MEDICAL EXPENDITURES FOR RANDOMIZED AFDC ADULT BENEFICIARIES, BY PLAN

Plan	Predicted Expenditures	% Difference from Average
Plan 1	$1,006	(30)
Plan 2	1,173	(18)
Plan 3	1,584	10
Plan 4	1,975	37
Plan 5	1,447	1
Average	1,437	--

highest cost plan, Plan 4, had predicted expenditures that were more than 40 percent greater than the average. It is not possible to conclude, however, which plan represents the most desirable pattern of care on the basis of these predictions. Low costs in Plan 1 might reflect efficient service delivery patterns or inadequate access and poorer quality care. Furthermore, any differences in encounter reporting rates are also captured in the plan effects.

In contrast to the regression results in the preceding section, which measured selection effects based on pairwise plan comparisons, predicted expenditures for non-randomized AFDC adults shown in Table 5-5 provide total measures of selection (including the effects of both observable and unobservable characteristics) comparing each plan to the average across all plans. The first column is the mean predicted expenditure for non-randomized beneficiaries that actually were enrolled in each plan. The second column is the mean predicted expenditure if all non-randomized sample members had been enrolled in each plan. The difference between the predicted expenditures in these two columns reflects the impact of characteristics of non-randomized beneficiaries in each plan compared to those of the total non-randomized sample, controlling for plan effects on expenditures.

Predicted expenditures for non-randomized beneficiaries in Plan 1 were 25% higher than they would have been if their characteristics were the same as those of non-randomized beneficiaries in all plans. On the other end of the spectrum, non-randomized beneficiaries in Plan 5 were substantially less costly, with predicted expenditures 46% less than they would have been if their characteristics reflected the average for all non-randomized beneficiaries. Plan 4, which had predicted expenditures 17% below those expected if they enrolled a population with the average characteristics of the non-randomized group, benefitted from less extreme favorable selection. The impact of selection was modest in Plan 2 and Plan 3.

Selection effects in Plan 1 and Plan 4 are explained by unobservable enrollee characteristics. Predicted expenditures for non-randomized beneficiaries in each plan were compared to those for non-randomized

Table 5-5

PREDICTED ANNUALIZED MEDICAL EXPENDITURES FOR NON-RANDOMIZED AFDC ADULT BENEFICIARIES IN EACH PLAN AND IN ALL PLANS, CONTROLLING FOR PLAN EFFECTS

Plan	Non-Randomized Beneficiaries In Plan	All Non-Randomized Beneficiaries	Percent Difference
Plan 1	$1,969	$1,574	25
Plan 2	1,963	1,748	12
Plan 3	2,078	2,325	(11)
Plan 4	2,391	2,871	(17)
Plan 5	1,157	2,150	(46)

beneficiaries in all plans, controlling for both plan effects and selection due to unobservable characteristics. In these comparisons, Plan 4 has predicted expenditures that are nearly the same as the average, while those for Plan 1 are actually seven percent less than average. For Plan 5, in contrast, selection on unobservable characteristics reinforces favorable selection on observables. Holding constant the effects of plan and unobservable characteristics, predicted expenditures for non-randomized beneficiaries in Plan 5 are 20 percent less than the average for all non-randomized beneficiaries. The effects of selection due to observable and unobservable characteristics also worked in the same direction in Plan 2 and Plan 3.

Randomized beneficiaries have expenditures that are roughly one-third less than non-randomized beneficiaries' expenditures (compare the first column of Table 5-4 to the second column of Table 5-5). Therefore, differences between plans in the relative shares of randomized and non-randomized beneficiaries also contribute to variation in the costliness of AFDC adult enrollees. The plans differed significantly in their relative shares of randomized and non-randomized beneficiaries ($p<.001$). While non-randomized beneficiaries were 80% of the AFDC adults in Plan 2 and 77% in Plan 4, they comprised only 46% of Plan 1 and 40% of Plan 5. At 58%, Plan 3 had an intermediate share of non-randomized AFDC adult beneficiaries.

AFDC Children

Characteristics of the Sample

Descriptive statistics for the sample of AFDC children are presented in Table 5-6. The weighted average probability of service use was nearly .80. The average annualized expenditure was $703 for all AFDC children and $898 for those with service use.

The distribution of AFDC children by plan and random assignment status was similar to that of AFDC adults. AFDC children were evenly divided between

Table 5-6
CHARACTERISTICS OF AFDC CHILDREN SAMPLE

Variable	Mean	Standard Deviation
Plan 2	.324	.468
Plan 3	.178	.382
Plan 4	.238	.426
Plan 5	.064	.245
Non-random	.680	.466
Non-random*Plan 2	.269	.444
Non-random*Plan 3	.100	.300
Non-random*Plan 4	.184	.388
Non-random*Plan 5	.024	.154
Female	.498	.500
White	.389	.488
English	.210	.407
Language Missing	.107	.309
Cash	.721	.448
Newborn	.079	.269
Age > 1	.872	.334
Age > 6	.482	.500
Age > 12	.183	.387
Months > 1	.996	.066
Months > 4	.937	.243
Months > 7	.770	.421
Months > 10	.677	.468
Months > 14	.480	.500
Months > 18	.379	.485
Months Enrolled > 10	.758	.428
Number in Sample	6,230	

males and females. Close to 40% were white. Only 21% was reported as speaking English, again suggesting that language is reported with error. Nearly three-quarters were eligible for cash benefits. Almost 10% were newborns at the beginning of their enrollment span and 13% were one year old or less at the midpoint. Less than half of the sample was over the age of six and less than one-fifth was over twelve years old. AFDC children had an unweighted mean enrollment span length of 8.3 months and nearly half were enrolled in their plan for more than ten months.

Regression Results

Table 5-7 presents the effects of explanatory variables from the two variants of the model of annualized expenditures for AFDC children. The results of the regressions on the probability of use and the logarithm of expenditures for those with service use, from which the estimates in Table 5-7 are derived, are presented in Table 5S-3 and 5S-4.

Results from the model excluding observable beneficiary characteristics as covariates (columns 1 and 2) show little variation in expected expenditures by plan among randomized beneficiaries and none of the plan effect variables are significant.[84] Estimated selection effects are small and none approach significance. Both plan and selection effect variables are jointly insignificant. Non-randomized beneficiaries are substantially more costly than randomized and the expenditure variation between these groups is significant in all plans. This marked difference is in part explained by the higher costs of newborns, all of whom are classified as non-randomized.[85]

Plan effect estimates are unchanged by the addition of covariates for observable beneficiary characteristics (columns 3 and 4 of Table 5-7). When selection is decomposed on the basis of observable and unobservable characteristics, the effects of unobservables remain small and insignificant, both individually and jointly. Compared to the model that omits covariates, inclusion of observable characteristics (especially newborn status) dramatically decreases remaining differences due to unobservables between the

Table 5-7

FACTORS AFFECTING ANNUALIZED MEDICAL EXPENDITURES FOR AFDC CHILDREN BENEFICIARIES

Variable	Excluding Covariates		Including Covariates	
	Effect	Standard Error	Effect	Standard Error
Plan 2	74.33***	43.44	83.29	74.77
Plan 3	11.84	35.39	16.88	64.90
Plan 4	4.43	39.43	-20.12	71.26
Plan 5	9.16	48.27	28.02	82.30
Non-random	580.22*	60.82	211.75*	64.94
Non-random*Plan 2	-11.91	79.91	-54.17	93.08
Non-random*Plan 3	-47.05	85.65	-40.53	91.55
Non-random*Plan 4	50.50	81.58	40.33	93.59
Non-random*Plan 5	-84.94	131.14	-140.63	121.87
Female	---	---	-102.45*	30.68
White	---	---	181.01*	32.66
English	---	---	124.13*	42.31
Language Missing	---	---	-9.84	46.86
Cash	---	---	-42.72	42.02
Newborn			1,093.27*	158.70
Age > 1			-733.27*	84.09
Age > 6			-142.43*	25.72
Age > 12	---	---	234.50*	41.30
Months > 1	---	---	-818.84**	320.83
Months > 4	---	---	-259.94*	57.24
Months > 7	---	---	91.28**	45.10
Months > 10	---	---	27.06	55.42
Months > 14	---	---	-38.94	51.23
Months > 18	---	---	45.16	52.28
Months Enrolled > 10	---	---	-91.60***	51.74
χ^2, Joint Significance of Plan Effects	3.21		7.65	
χ^2, Joint Significance of Non-random*Plan	2.03		4.05	

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* Statistically significant at $p < .01$

** Statistically significant at $p < .05$

*** Statistically significant at $p < .10$

expected expenditures of randomized and non-randomized enrollees in each plan. Nonetheless, the difference in the expected expenditures of these groups remains significant for all plans except Plan 5.

With the exception of variables for receipt of cash benefits and not having language reported, all of the observable demographic characteristics included in the model were significant predictors of expenditures. Of these, only the racial distribution differed significantly by plan in the non-randomized group. Being female reduces expected expenditures, while being white and speaking English have positive effects on annualized expenditures. Newborn status has by far the largest effect on annualized expenditures, increasing them by more than one thousand dollars per year. This large coefficient reflects the fact that virtually all AFDC children who are newborns at the beginning of their enrollment span have some service use, compared to approximately three-quarters of other AFDC children. Newborns also are far more likely than other AFDC children to have inpatient expenditures because they have hospital use associated with their births. Relative to infants under the age of one, expected expenditures decrease significantly through age 12, above which there is a significant increase.

Annualized expenditures fell with increasing length of enrollment span over the first seven months, followed by a small, significant increase for beneficiaries with an enrollment span greater than seven months long.[86] The expenditure rate remained flat for enrollment spans greater than ten months. Of the significant enrollment span variables, only the share of non-randomized beneficiaries with spans greater than seven months differed significantly by plan. The length of enrollment in a plan, as opposed to the period of time over which utilization is observed, has a negative, but insignificant, effect on annualized expenditures.

Comparison of Plans' Predicted Medical Expenditures

Predicted medical expenditures for randomized AFDC children are presented in Table 5-8. The methodology for calculating these predictions is

Table 5-8

PREDICTED ANNUALIZED MEDICAL EXPENDITURES FOR RANDOMIZED AFDC CHILDREN BENEFICIARIES, BY PLAN

Plan	Predicted Expenditures	% Difference from Average
Plan 1	$273	(5)
Plan 2	336	17
Plan 3	290	1
Plan 4	260	(9)
Plan 5	271	(5)
Average	286	--

described in the subsection on AFDC adults. Compared to the results for adults, there was relatively little variation in predicted expenditures for AFDC children. The lowest cost plan (Plan 4) had predicted expenditures that were about nine percent below the average across plans, while those of the highest cost plan (Plan 2) were 17 percent above the average.

Total measures of selection effects, which compare the expected expenditures of non-randomized enrollees in each plan to those in all plans after controlling for plan effects, are presented in Table 5-9. As the regression results indicated, there is little evidence of selection among AFDC children. Non-randomized beneficiaries in Plan 4 had predicted annualized expenditures that were 12 percent higher than they would have been if the enrollees in this plan had the average characteristics of all non-randomized AFDC children. For other plans, the difference was less than ten percent.

With the exception of Plan 5, virtually no differences between predicted expenditures for the non-randomized enrollees in each plan and non-randomized enrollees in all plans remained after controlling for plan effects and selection on unobservables. This is expected because only one of the observable characteristics that was a significant predictor of expenditures was differentially distributed across plans in the non-randomized group. Non-randomized beneficiaries in Plan 5, however, had predicted expenditures that were about 15 percent higher than they would have been if their observable characteristics reflected the average across plans.

Randomized AFDC children are substantially less costly than non-randomized. Comparison of the first column of Table 5-8 with the second column of Table 5-9 shows that randomized beneficiaries have predicted annualized expenditures that are only one-third as large as those of non-randomized beneficiaries. This is mainly attributable to the higher expected costs of newborns, all of whom are in the non-randomized group, and the generally younger age distribution of the non-randomized group. However, differences in unobservable characteristics also contribute to the higher expected costs of non-randomized AFDC children. Excluding newborns, predicted expenditures for randomized beneficiaries are still approximately 40% less

Table 5-9

PREDICTED ANNUALIZED MEDICAL EXPENDITURES FOR NON-RANDOMIZED AFDC CHILDREN BENEFICIARIES IN EACH PLAN AND IN ALL PLANS, CONTROLLING FOR PLAN EFFECTS

Plan	Non-Randomized Beneficiaries In Plan	All Non-Randomized Beneficiaries	Percent Difference
Plan 1	$820	$800	3
Plan 2	856	912	(6)
Plan 3	773	816	(5)
Plan 4	860	768	12
Plan 5	796	868	(8)

than those of non-randomized. As was the case for AFDC adults, the shares of randomized and non-randomized beneficiaries differed significantly by plan ($p<.001$). Plan 2 and Plan 4 had the highest shares (83% and 77%, respectively), while Plan 5 had the smallest share (38%); 53% and 56% of the AFDC children in Plan 1 and Plan 3, respectively, were non-randomized.

CCP

Characteristics of the Sample

Descriptive statistics for the CCP sample are presented in Table 5-10. In the CCP sample, the weighted average probability of service use was .70. The average annualized expenditure was $809 for all CCP children and $1151 for those with service use.

Plan 2 enrolled approximately 30 percent of the CCP sample, while Plan 1, Plan 3 and Plan 4 had roughly one-fifth each. Plan 5 was again the smallest plan, with about six percent of CCP enrollees. The distribution of randomized and non-randomized beneficiaries differed between the CCP and AFDC samples. Nearly two-fifths of the CCP sample was randomized, compared to roughly one-third of the AFDC samples. Within plans, there were considerable differences in the distribution of enrollees by randomization status.[87] More than three-quarters of Plan 2's and Plan 4's enrollees were non-randomized, while well below half of the enrollees in the other three plans were not randomly assigned.

The total CCP sample was roughly evenly divided between females and males and between whites and other ethnicities. Nearly three-quarters were classified as English-speaking and a much lower percentage did not have language reported than in the AFDC samples. In general, CCP beneficiaries were younger children.[88] Almost ten percent were classified as newborns, nearly one-fifth were under the age of one, and less than ten percent was over age 12. CCP enrollment spans were generally shorter than those of AFDC

Table 5-10

CHARACTERISTICS OF CCP SAMPLE

Variable	Mean	Standard Deviation
Plan 2	.292	.455
Plan 3	.204	.403
Plan 4	.213	.410
Plan 5	.064	.246
Non-random	.621	.485
Non-random*Plan 2	.256	.437
Non-random*Plan 3	.084	.278
Non-random*Plan 4	.166	.372
Non-random*Plan 5	.022	.147
Female	.490	.500
White	.454	.498
English	.728	.445
Language Missing	.055	.228
Newborn	.091	.288
Age > 1	.811	.392
Age > 6	.354	.478
Age > 12	.072	.258
Months > 1	.990	.097
Months > 4	.885	.320
Months > 7	.588	.492
Months > 10	.456	.498
Months > 14	.286	.452
Months > 18	.190	.393
Months Enrolled > 10	.537	.499
Number in Sample	6,343	

beneficiaries. The unweighted mean enrollment span length was 6.1 months and only 29 percent were enrolled in their plan for more than ten months.

Regression Results

The effects of explanatory variables on annualized expenditures for CCP children are shown in Table 5-11. The first two columns present estimated effects from the model without covariates, while the third and fourth columns are estimated effects when covariates for observable beneficiary characteristics are included. See Table 5S-5 and Table 5S-6 for parameter estimates from the probability of use and conditional expenditure regressions from which the effects in Table 5-11 are derived.

As was found for AFDC children, the model without covariates showed no significant differences in plan effects and plan variables were jointly insignificant (p=.63). Measures of total selection were also all insignificant, both individually and jointly (p=.84).[89] In all plans, non-randomized beneficiaries have significantly higher expenditures than randomized. As noted in the subsection on AFDC children, this is in part explained by the classification of newborns as non-randomized.

The insignificance of plan effect variables is unaltered by the addition of covariates to the model. After controlling for the effects of observable characteristics, the effects of selection due to unobservables are also individually and jointly insignificant.[90] Paralleling the AFDC children results, differences between the expected expenditures of randomized and non-randomized beneficiaries that are attributable to unobservable characteristics fall markedly with the addition of covariates to the model. However, differences in unobservables still make non-randomized beneficiaries a significantly more costly group than randomized in all plans.[91]

The only demographic characteristics that are significant predictors of expenditures are those related to language and age. Of the observable demographic characteristics that were significant predictors of annualized

Table 5-11

FACTORS AFFECTING ANNUALIZED MEDICAL EXPENDITURES FOR CCP BENEFICIARIES

	Excluding Covariates		Including Covariates	
Variable	Effect	Standard Error	Effect	Standard Error
Plan 2	-33.06	58.34	-53.05	68.39
Plan 3	-15.08	45.51	-42.76	52.27
Plan 4	29.91	72.00	35.15	86.94
Plan 5	-82.62	59.51	-86.98	71.16
Non-random	666.10*	86.54	293.35*	64.93
Non-random*Plan 2	22.55	110.59	-6.51	91.83
Non-random*Plan 3	-66.34	129.70	25.40	97.54
Non-random*Plan 4	88.81	129.41	-92.50	107.14
Non-random*Plan 5	63.92	167.23	-109.00	106.43
Female	---	---	-39.53	28.92
White	---	---	9.82	30.53
English	---	---	161.62*	35.47
Language Missing	---	---	177.23**	80.70
Newborn	---	---	1,152.48*	122.19
Age > 1	---	---	-476.87*	57.33
Age > 6	---	---	-162.47*	24.94
Age > 12	---	---	106.57***	57.73
Months > 1	---	---	-547.15*	197.56
Months > 4	---	---	-245.52*	46.96
Months > 7	---	---	-46.16	35.40
Months > 10	---	---	8.66	51.16
Months > 14	---	---	10.34	51.47
Months > 18	---	---	12.13	55.85
Months Enrolled > 10	---	---	-67.95	45.35
χ^2, Joint Significance of Plan Effects	2.61		2.48	
χ^2, Joint Significance of Non-random*Plan	1.45		2.36	

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* Statistically significant at $p < .01$
** Statistically significant at $p < .05$
*** Statistically significant at $p < .10$

expenditures, there were significant differences between plans in the proportions of non-randomized CCP beneficiaries who were English-speaking, over the age of one, and newborn. Being English-speaking or not having language reported both increase expenditures. Newborns again have dramatically higher expenditures than other children. As was the case with AFDC children, CCP beneficiaries who were newborns at the beginning of their enrollment span are far more likely than others to have service use (99 percent compared to 67 percent) and are likely to have inpatient use. Expenditures fall with increasing age through the age of 12. Unlike the AFDC children results, the positive effect of being over 12 years old is not significant. This undoubtedly reflects the fact that CCP eligibles are all under 14, whereas AFDC beneficiaries up to the age of 18 were classified as children in these analyses.

Annualized expenditures fall as the length of the enrollment span increases to seven months, after which expenditure rates remain level. However, there were no significant differences between plans in the share of non-randomized beneficiaries with enrollment spans less than seven months long. Being enrolled for greater than ten months decreases annualized expenditures, but the effect is not significant.

Comparison of Plans' Predicted Medical Expenditures

Predicted expenditures for randomized CCP beneficiaries are shown in Table 5-12. Similar to the results for AFDC children, there is relatively little variation by plan. Predicted expenditures in the lowest cost plan (Plan 5) are about 19 percent below the average across plans, while those in the highest cost plan (Plan 4) are about 17 percent higher than the average.

Total estimated selection effects due to observable and unobservable characteristics are presented in Table 5-13. The impact of differences between plans in the characteristics of non-randomized enrollees is modest. For all plans, expected expenditures would have changed by 12 percent or less

Table 5-12

PREDICTED ANNUALIZED MEDICAL EXPENDITURES FOR RANDOMIZED CCP BENEFICIARIES, BY PLAN

Plan	Predicted Expenditures	% Difference from Average
Plan 1	$229	6
Plan 2	214	(1)
Plan 3	211	(2)
Plan 4	252	17
Plan 5	174	(19)
Average	216	--

Table 5-13

PREDICTED ANNUALIZED MEDICAL EXPENDITURES FOR NON-RANDOMIZED CCP BENEFICIARIES IN EACH PLAN AND IN ALL PLANS, CONTROLLING FOR PLAN EFFECTS

Plan	Non-Randomized Beneficiaries In Plan	All Non-Randomized Beneficiaries	Percent Difference
Plan 1	$837	$928	(10)
Plan 2	846	793	7
Plan 3	746	835	(11)
Plan 4	977	983	(1)
Plan 5	878	786	12

if the plan had enrolled non-randomized beneficiaries with characteristics representative of the full sample.

While overall selection effects are modest, there are more pronounced effects attributable to differences in observable characteristics alone. After controlling for differences in both plan effects and selection on unobservable characteristics, non-randomized beneficiaries in Plan 3 have predicted expenditures 18% less than they would have been if their observable characteristics were representative of the average across all plans, while those in Plan 4 and Plan 5 had predicted expenditures that were 13% and 27% higher, respectively. These differences are explained by the share of newborns and enrollees under the age of one in these plans. While 15% of all enrollees are newborns, they are only 9% of the population in Plan 3, but 19% of the total in Plan 4 and 24% in Plan 5. Similarly, on average 25% of CCP beneficiaries are under the age of one; however, they comprise 18% of Plan 3, 30% of Plan 4, and 34% of Plan 5.

The disparity between predicted expenditures for randomized and non-randomized enrollees is even greater for CCP beneficiaries than for AFDC children. Annualized expenditures for randomized CCP beneficiaries are about one-quarter of those for non-randomized beneficiaries (compare the first column of Table 5-11 with the second column of Table 5-12). This is again primarily due to substantially higher expenditures for newborns, who are classified as non-random, and the overall younger age distribution of the non-random group. However, other factors contribute to the higher costs of non-randomized beneficiaries compared to randomized, including differences in unobservable characteristics and the proportion of English-speaking beneficiaries (79% in the non-randomized group compared to 63% in the randomized group). Excluding newborns, randomized beneficiaries' predicted expenditures were still less than half of non-randomized beneficiaries'. The distribution of randomized and non-randomized beneficiaries differed significantly by plan (P<.001), and was even more disproportionate in the CCP sample than in the AFDC samples. Plan 2 and Plan 4 again had the largest shares of non-randomized CCP beneficiaries with 88% and 78%, respectively. In contrast, non-randomized beneficiaries were only 41% of the total in Plan 1 and Plan 3, and 34% in Plan 5.

Summary and Policy Implications

There is no strong, consistent pattern of differential selection among the five largest plans contracting with AHCCCS in Maricopa County, although there is some evidence suggestive of selection favoring Plan 5, which is the newest entrant to AHCCCS of the plans studied. This analysis uses expenditure variation among randomly assigned beneficiaries to control for the effect of plan characteristics on differences in the utilization of non-randomized enrollees. Among children, plan effects on utilization were small and insignificant. Plan effects for adults were larger, although they were imprecisely estimated and usually not significantly different from each other.

AHCCCS does not pay contracting plans at the same capitation rate because the plans are paid their final bid or a negotiated rate. During the time period covered by this study, AFDC capitation rates for plans in Maricopa County varied from each other by four percent or less. The CCP rates diverged by greater amounts. Plan 2 and Plan 4 received nearly the same rate; however, Plan 5's rate was 14% lower, and Plan 1 and Plan 3 were paid 18% less. The uniformity of AFDC payment rates generally appears to be reasonable given the absence of marked differences in enrollee population risk. There is no evident justification for the disparity in CCP capitation payments as compensation for differential risk selection.

For children in the AFDC and CCP rate categories, the variation in expected expenditures between plans that was explained by differences in the characteristics of non-randomized beneficiaries was 12 percent or less. Among AFDC adults, however, greater variation was observed with Plan 5 enrolling a substantially less costly population; controlling for the effect of plan characteristics on utilization, predicted expenditures for non-randomized AFDC adults in Plan 5 were 46 percent less than they would have been if their characteristics were the same as those of non-randomized AFDC adult beneficiaries in all plans. Given that Plan 5 has participated in AHCCCS for a much shorter length of time than the other plans, it is possible that this apparent favorable selection is a cohort effect that will dissipate over time.

Selection bias can arise from differences in the distribution of both observable and unobservable beneficiary characteristics. In these analyses observable characteristics included variables for age, gender, ethnicity, language, and eligibility for cash benefits. Remaining differences across plans in the utilization of the non-randomized population were attributed to unobservable characteristics (e.g., unmeasured health status or the propensity to use services). Although the variables reflecting selection on unobservable characteristics were never jointly significant, in analyses that omitted influential observations, the results for AFDC adult and CCP beneficiaries point toward selection on unobservable characteristics that favors Plan 5. A number of the observable demographic characteristics included in the model are significant predictors of medical expenditures. The impact of selection due to these factors was again greatest for Plan 5, although the direction of their effect was favorable for adults, but adverse for children.

Based on these findings, particularly for children, it does not appear that selection bias among enrollees who are not randomly assigned to a health plan is a serious problem in AHCCCS. However, these analyses provide conservative estimates of selection bias because they do not distinguish beneficiaries who are manually assigned to a plan from those who choose. Furthermore, some results that are indicative of more serious selection problems are imprecisely estimated because the sample sizes are fairly small.

While these analyses do not provide overwhelming evidence of selection bias in Arizona's capitated Medicaid program, it cannot be concluded that selection bias is not a problem in such programs generally or that it might not be a concern in AHCCCS at another point in time. Selection bias must always be evaluated within a specific context. For example, selection might be a serious problem in another Medicaid program that does not regulate marketing activities like AHCCCS or where a set of plan alternatives with different histories or characteristics are offered. Nonetheless, the results of this analysis indicate that selection bias need not be an impediment to implementing a capitated Medicaid program.

Although it is not a typical dimension of selection bias, the relative shares of randomized and non-randomized beneficiaries are a major component of the difference between plans in enrollee risk. The finding that randomized beneficiaries are a less costly group is consistent with experience from a Medicaid Competition Demonstration site with a mandatory case management program, where beneficiaries assigned to a gatekeeper were healthier and less likely to have had a prior regular source of care than those who chose their gatekeeper.[92] It remains an open policy question whether AHCCCS should adjust rates to reflect the higher costs of beneficiaries who exercise their option to choose compared to beneficiaries who are assigned. While paying a plan the same rate for these two types of beneficiaries clearly creates inequities between plans, the comparative profitability of assigned beneficiaries may provide AHCCCS with leverage to negotiate lower payment rates because the proportion of assigned beneficiaries allocated to a plan depends on the rank of its capitation rates compared to other plans in the county.

Two other broad areas in which AHCCCS might consider modifying its payment policies are the use of a single capitation rate for newborn and other children, as well as for AFDC adults and children. There were dramatic differences between the expected expenditures of children who were newborn at the beginning of their enrollment span and those who were not. AHCCCS partially addresses the higher costs associated with newborns through deferred liability payments for expensive sick newborns. However, these payments do not compensate completely for expenditure differences between newborn and other children. One option might be to make an additional lump-sum payment for newborns similar to the supplemental delivery payment for SOBRA-eligible pregnant women. AFDC-eligible children are far less costly than adults. While the observed average annualized expenditure for AFDC adults was greater than $1,700, it was only $700 for AFDC children. Among non-randomized AFDC beneficiaries, the plans enrolled significantly different shares of adults and children, with Plan 1 having the smallest share of adults. However, children dominate the AFDC eligibility category, comprising roughly 70 percent of the total.

A number of observable demographic characteristics were important predictors of expenditures that, in principle, could be used as a basis for rate adjustment. Although differences in costs attributable to unobservable characteristics cannot be used to create a prospective risk adjustment model, they could potentially be used as a basis for ex post payment adjustments. However, several factors should be considered before either type of adjustment is implemented.

The goal of minimizing expenditure variation due to risk differences needs to be balanced against the administrative complexity of having a large number of rate categories. An additional factor is stability of payment rates. Because it is reasonable for plans to expect some predictability in their capitation rates over time, a program should base adjustments on several years of data, rather than continually adjusting payment rates to reflect experience in each year. A program administrator must also determine how significant the impact of selection effects should be to warrant an adjustment. For example, is a ten percent variation in expenditures due to differences in beneficiary risk profile acceptable or unacceptable? Another decision is whether rates should be adjusted for characteristics that are significant predictors of use, regardless of whether their distributions actually differ across plans. If no adjustment is built into the rates, it is important to monitor for selection bias because such characteristics are dimensions along which selection could potentially occur in the future. Care also must be taken that any adjustments made for risk differentials do not exacerbate inequities in plan payment rates. For example, if the effects of selection on unobservable and observable characteristics operate in opposing directions, adjusting payment rates for observable characteristics alone could create greater competitive inequality than if no adjustment were made.

Given that a program chooses to adjust rates, several decisions must be made about how to implement the adjustment. One choice is whether adjustments should be prospective or retrospective. If observable characteristics are used to establish rate categories prospectively, groups would have to be defined based on appropriate sets of characteristics. Retrospective adjustments could be based on utilization differences attributable to either observable or unobservable characteristics. If retrospective adjustments are made, then an appropriate benchmark must be chosen to define expenditure differences eligible for compensation.

It is open to debate whether the methodology used here can be adopted as part of an ongoing system of monitoring and adjusting for selection bias. It is possible that the selection measure could be gamed by the plans because the variable on which it depends is theoretically open to manipulation by them. Basing payment on the relative costliness of assigned and non-assigned beneficiaries could theoretically create an incentive for plans to cut service to the assigned population to make choosers appear to be high cost and, therefore, high risk. Whether plans, in practice, would be able to game the system in this way is doubtful because it depends on their ability to identify the assignment status of beneficiaries accurately and to translate this information and the incentive to manipulate service use to physicians and other providers.

The methodology used to evaluate selection bias should be of interest to other programs. The natural experiment on which this analysis is based arose because a large number of beneficiaries did not exercise their option to choose a plan and AHCCCS needed a policy for assigning them to one. It is likely that other capitated Medicaid programs will need to make a similar policy decision. If so, randomization of beneficiaries across plans is an appealing alternative because it offers a natural way to build in a mechanism for monitoring plan performance.

SELECTION BIAS IN THE ACUTE CARE PLANS — SUPPLEMENTAL TABLES

Table 5S-1

PARAMETER ESTIMATES FROM TWO-PART MODEL OF MEDICAL EXPENDITURES FOR AFDC ADULT BENEFICIARIES, COVARIATES NOT INCLUDED

Variable	Probability of Use		E (Ln Annualized $\|$>0)	
	Coefficient	Standard Error	Coefficient	Standard Error
Plan 2	0.78*	0.22	0.09	0.24
Plan 3	0.98*	0.22	0.25	0.24
Plan 4	0.87*	0.25	0.50**	0.27
Plan 5	0.13	0.25	0.26	0.29
Non-random	0.81*	0.21	0.50**	0.23
Non-random*Plan 2	-0.26	0.29	-0.19	0.30
Non-random*Plan 3	-0.67**	0.32	-0.28	0.33
Non-random*Plan 4	-0.53	0.33	-0.39	0.32
Non-random*Plan 5	-0.41	0.41	-0.81**	0.39
Intercept	0.50*	0.13	6.22*	0.16
Number in Sample	2,671		1,691	
Mean of Dependent Variable	0.80		6.60	
Likelihood Ratio Index	0.03		--	
Adjusted R^2	--		0.01	

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* Statistically significant at $p < .01$
** Statistically significant at $p < .05$
*** Statistically significant at $p < .10$

Table 5S-2

PARAMETER ESTIMATES FROM TWO-PART MODEL OF MEDICAL EXPENDITURES FOR AFDC ADULT BENEFICIARIES, COVARIATES INCLUDED

Variable	Probability of Use		E (Ln Annualized $\|$>0)	
	Coefficient	Standard Error	Coefficient	Standard Error
Plan 2	0.66*	0.25	0.00	0.23
Plan 3	0.90*	0.25	0.26	0.23
Plan 4	1.07*	0.28	0.45***	0.25
Plan 5	0.70**	0.28	0.20	0.28
Non-random	1.14*	0.25	0.46**	0.22
Non-random*Plan 2	-0.31	0.33	-0.16	0.29
Non-random*Plan 3	-0.71***	0.36	-0.26	0.32
Non-random*Plan 4	-0.77**	0.37	-0.38	0.31
Non-random*Plan 5	-0.78***	0.46	-0.57	0.37
Female	0.69*	0.16	0.26	0.18
White	0.28**	0.11	0.13	0.09
English	0.53*	0.17	0.31*	0.12
Language Missing	-0.05	0.15	-0.13	0.12
Cash	-0.45***	0.27	-0.34***	0.19
Age > 28	-0.13	0.11	-0.37*	0.09
Months > 1	0.94	0.74	-0.99*	0.33
Months > 4	0.72*	0.18	-0.23***	0.13
Months > 7	0.86*	0.19	-0.22	0.15
Months > 10	0.30	0.29	0.53*	0.20
Months > 14	-0.16	0.24	-0.19	0.15
Months > 18	0.86*	0.23	0.36**	0.16
Months Enrolled > 10	0.64*	0.24	-0.41**	0.18
Intercept	-2.79*	0.80	7.73*	0.44
Number in Sample	2,671		1,691	
Mean of Dependent Variable	0.80		6.60	
Likelihood Ratio Index	0.21		--	
Adjusted R^2	--		0.04	

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* Statistically significant at $p < .01$

** Statistically significant at $p < .05$

*** Statistically significant at $p < .10$

Table 5S-3

PARAMETER ESTIMATES FROM TWO-PART MODEL OF MEDICAL EXPENDITURES FOR AFDC CHILDREN BENEFICIARIES, COVARIATES NOT INCLUDED

Variable	Probability of Use		E (Ln Annualized $\|$>0)	
	Coefficient	Standard Error	Coefficient	Standard Error
Plan 2	0.32**	0.14	0.12	0.12
Plan 3	0.17	0.13	-0.02	0.11
Plan 4	0.04	0.14	-0.00	0.13
Plan 5	-0.44*	0.15	0.22	0.15
Non-random	1.26*	0.14	0.51*	0.10
Non-random*Plan 2	-0.29	0.20	-0.06	0.14
Non-random*Plan 3	-0.18	0.20	-0.02	0.14
Non-random*Plan 4	-0.03	0.20	0.06	0.15
Non-random*Plan 5	0.18	0.28	-0.27	0.21
Intercept	0.50*	0.09	5.18*	0.08
Number in Sample	6,230		3,868	
Mean of Dependent Variable	0.78		5.60	
Likelihood Ratio Index	0.06		--	
Adjusted R^2	--		0.03	

---

* Statistically significant at $p < .01$

** Statistically significant at $p < .05$

Table 5S-4

PARAMETER ESTIMATES FROM TWO-PART MODEL OF MEDICAL EXPENDITURES FOR AFDC CHILDREN BENEFICIARIES, COVARIATES INCLUDED

	Probability of Use		E (Ln Annualized $\|$>0)	
Variable	Coefficient	Standard Error	Coefficient	Standard Error
Plan 2	0.36**	0.16	0.10	0.14
Plan 3	0.19	0.15	0.00	0.13
Plan 4	-0.02	0.16	-0.04	0.15
Plan 5	-0.35**	0.17	0.12	0.16
Non-random	0.89*	0.16	0.24**	0.11
Non-random*Plan 2	-0.23	0.22	-0.08	0.16
Non-random*Plan 3	-0.09	0.23	-0.05	0.16
Non-random*Plan 4	0.09	0.22	0.06	0.17
Non-random*Plan 5	0.48	0.32	-0.30	0.21
Female	0.07	0.07	-0.16*	0.05
White	0.40*	0.08	0.22*	0.05
English	0.25*	0.09	0.15*	0.06
Language Missing	-0.11	0.11	-0.00	0.07
Cash	0.06	0.09	-0.07	0.06
Newborn	3.48*	0.90	0.93*	0.11
Age > 1	-1.34*	0.20	-0.50*	0.08
Age > 6	-0.33*	0.09	-0.40*	0.06
Age > 12	-0.07	0.10	0.32*	0.08
Months > 1	1.21**	0.59	-0.99*	0.16
Months > 4	0.82*	0.14	-0.57*	0.07
Months > 7	0.86*	0.13	0.01	0.07
Months > 10	0.40*	0.15	-0.01	0.08
Months > 14	0.30**	0.14	-0.09	0.08
Months > 18	0.81*	0.15	0.02	0.08
Months Enrolled > 10	0.13	0.12	-0.15**	0.07
Intercept	-1.44**	0.61	7.58*	0.20
Number in Sample	6,230		3,868	
Mean of Dependent Variable	0.78		5.60	
Likelihood Ratio Index	0.24		--	
Adjusted R^2	--		0.23	

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* Statistically significant at $p < .01$
** Statistically significant at $p < .05$

Table 5S-5

PARAMETER ESTIMATES FROM TWO-PART MODEL OF MEDICAL EXPENDITURES FOR CCP BENEFICIARIES, COVARIATES NOT INCLUDED

	Probability of Use		E (Ln Annualized $\|$>0)	
Variable	Coefficient	Standard Error	Coefficient	Standard Error
Plan 2	0.28***	0.15	-0.23	0.16
Plan 3	0.20***	0.10	-0.14	0.12
Plan 4	0.15	0.13	0.00	0.18
Plan 5	-0.31**	0.14	-0.08	0.19
Non-random	1.66*	0.13	0.48*	0.11
Non-random*Plan 2	-0.07	0.20	0.19	0.18
Non-random*Plan 3	0.01	0.19	0.03	0.17
Non-random*Plan 4	-0.01	0.19	0.08	0.20
Non-random*Plan 5	0.35	0.28	0.06	0.24
Intercept	-0.16**	0.07	5.35*	0.08
Number in Sample	6,343		3,465	
Mean of Dependent Variable	0.70		5.68	
Likelihood Ratio Index	0.12		--	
Adjusted R^2	--		0.03	

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* Statistically significant at $p < .01$
** Statistically significant at $p < .05$
*** Statistically significant at $p < .10$

Table 5S-6

PARAMETER ESTIMATES FROM TWO-PART MODEL OF MEDICAL EXPENDITURES FOR CCP BENEFICIARIES, COVARIATES INCLUDED

	Probability of Use		E (Ln Annualized $\|$>0)	
Variable	Coefficient	Standard Error	Coefficient	Standard Error
Plan 2	0.28***	0.17	-0.18	0.16
Plan 3	0.07	0.11	-0.11	0.12
Plan 4	0.12	0.15	0.05	0.17
Plan 5	-0.31***	0.16	-0.13	0.18
Non-random	1.40*	0.14	0.24**	0.11
Non-random*Plan 2	-0.06	0.22	0.07	0.18
Non-random*Plan 3	0.19	0.21	0.06	0.16
Non-random*Plan 4	0.06	0.21	-0.15	0.19
Non-random*Plan 5	0.46	0.32	-0.18	0.21
Female	0.02	0.07	-0.07	0.05
White	-0.05	0.07	0.02	0.05
English	0.18**	0.09	0.26*	0.07
Language Missing	-0.18	0.14	0.28*	0.10
Newborn	2.48*	0.42	1.01*	0.08
Age > 1	-0.87*	0.12	-0.55*	0.07
Age > 6	-0.47*	0.08	-0.31*	0.06
Age > 12	-0.45*	0.13	0.38*	0.13
Months > 1	1.11*	0.40	-0.78*	0.10
Months > 4	0.83*	0.11	-0.51*	0.05
Months > 7	0.67*	0.11	-0.18*	0.06
Months > 10	0.36**	0.14	-0.03	0.09
Months > 14	0.38*	0.14	-0.02	0.09
Months > 18	0.81*	0.16	-0.04	0.10
Months Enrolled > 10	-0.03	0.11	-0.11	0.07
Intercept	-1.70*	0.42	7.22*	0.14
Number in Sample	6,343		3,465	
Mean of Dependent Variable	0.70		5.68	
Likelihood Ratio Index	0.28		--	
Adjusted R^2	--		0.31	

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* Statistically significant at $p < .01$
** Statistically significant at $p < .05$
*** Statistically significant at $p < .10$

ENDNOTES

1. Minnesota Department of Human Services, Minnesota Department of Health, and Minnesota Health Plans, The Minnesota Utilization Data Definitions Committee Reporting Standards for Health Care Utilization Data (February 1992).

2. Nelda McCall, Jodi Korb, Lynn Paringer, Donald Balaban, C. William Wrightson, John Wilkin, Alice Wade, and Margaret Watkins, Evaluation of Arizona's Health Care Cost Containment System Demonstration: Second Outcome Report (San Francisco, California: Laguna Research Associates, April 1993).

   It should be noted that the saving estimate was based on medical service costs and did not include administrative costs that were higher for AHCCCS than for traditional Medicaid programs.

3. Nelda McCall, Jodi Korb, Lynn Paringer, Donald Balaban, C. William Wrightson, John Wilkin, Alice Wade, and Margaret Watkins, Evaluation of Arizona's Health Care Cost Containment System Demonstration: Second Outcome Report (San Francisco, California: Laguna Research Associates, April 1993).

4. Nelda McCall, Lynn Paringer, Michael Crane, C. William Wrightson, Pamela Turner, Ellen Jones Bauer, and James Boismier, Evaluation of the Arizona Health Care Cost Containment System: Final Report (Menlo Park, California: SRI International, January 1989).

5. Gordon Trapnell, David McKusick, C. William Wrightson, Lynn Paringer, Rose Chu, and Nelda McCall, Evaluation of the Arizona Health Care Cost Containment System: Comparison of AHCCCS Program Cost With That of a Traditional Medicaid Program for Fiscal Years 1983 and 1984 (Menlo Park, California: SRI International, April 1986).

   Gordon Trapnell, David McKusick, C. William Wrightson, Rose Chu, and Nelda McCall, Evaluation of the Arizona Health Care Cost Containment System: Comparison of AHCCCS Program Cost With That of a Traditional Medicaid Program for Fiscal Year 1985 (Menlo Park, California: SRI International, April 1987).

   Gordon Trapnell, David McKusick, C. William Wrightson, Rose Chu, and Nelda McCall, Evaluation of the Arizona Health Care Cost Containment System: Comparison of AHCCCS Program Cost With That of a Traditional Medicaid Program for Fiscal Years 1986 and 1987, (Menlo Park, California: SRI International, January 1989).

   Nelda McCall, Pamela Turner, C. William Wrightson, John Wilkin, Gordon Trapnell, Donald Balaban, Margaret Watkins, Lynn Paringer, Ellen Jones Bauer, Sande Kiriluk, Betty Skipper, and Neill Piland, Evaluation of the Arizona Health Care Cost Containment System Demonstration: First Outcome Report (San Francisco, California: Laguna Research Associates, July 1991).

6. Nelda McCall, Pamela Turner, C. William Wrightson, John Wilkin, Gordon Trapnell, Donald Balaban, Margaret Watkins, Lynn Paringer, Ellen Jones Bauer, Sande Kiriluk, Betty Skipper, and Neill Piland, Evaluation of the Arizona Health Care Cost Containment System Demonstration: First Outcome Report (San Francisco, California: Laguna Research Associates, July 1991).

   Nelda McCall, Jodi Korb, Lynn Paringer, Donald Balaban, C. William Wrightson, John Wilkin, Alice Wade, and Margaret Watkins, Evaluation of Arizona's Health Care Cost Containment System Demonstration: Second Outcome Report (San Francisco, California: Laguna Research Associates, April 1993).

7. Gordon Trapnell, David McKusick, C. William Wrightson, Lynn Paringer, Rose Chu, and Nelda McCall, Evaluation of the Arizona Health Care Cost Containment System: Comparison of AHCCCS Program Cost With That of a Traditional Medicaid Program for Fiscal Years 1983 and 1984 (Menlo Park, California: SRI International, April 1986).

   Gordon Trapnell, David McKusick, C. William Wrightson, Rose Chu, and Nelda McCall, Evaluation of the Arizona Health Care Cost Containment System: Comparison of AHCCCS Program Cost With That of a Traditional Medicaid Program for Fiscal Year 1985 (Menlo Park, California: SRI International, April 1987).

   Gordon Trapnell, David McKusick, C. William Wrightson, Rose Chu, and Nelda McCall, Evaluation of the Arizona Health Care Cost Containment System: Comparison of AHCCCS Program Cost With That of a Traditional Medicaid Program for Fiscal Years 1986 and 1987 (Menlo Park, California: SRI International, January 1989).

   Nelda McCall, Pamela Turner, C. William Wrightson, John Wilkin, Gordon Trapnell, Donald Balaban, Margaret Watkins, Lynn Paringer, Ellen Jones Bauer, Sande Kiriluk, Betty Skipper, and Neill Piland, Evaluation of the Arizona Health Care Cost Containment System Demonstration: First Outcome Report (San Francisco, California: Laguna Research Associates, July 1991).

8. See Chapter IX of Nelda McCall, Jodi Korb, Michael Crane, C. William Wrightson, Suzanne Pollack, Lynn Paringer, and William Weissert, Evaluation of Arizona's Health Care Cost Containment System Demonstration: Fourth Implementation and Operation Report (San Francisco, California: Laguna Research Associates, October 1994).

9. One technical problem presented by the separate evaluations of AHCCCS and ALTCS is dividing the nursing home and home-health services in the comparison states into those for acute and long-term care. Patients treated in nursing homes and by home-health agencies consist of two very different types: those recuperating from an accident or illness and those without a favorable prognosis for recovery who are being maintained. The latter are frequently referred to as "custodial" care patients.

Medicare regulations strictly limit nursing home and home-health care to recuperating patients. The original objective of these regulations was to restrict care to that which is substituted for hospital care. This is the only type of care provided through the acute care component of AHCCCS.

Although the regulations concerning federal reimbursements of Medicaid programs use similar definitions of eligible home care services (except in the case of states having home and community-based services (HCBS) waivers), states have evidently implemented these definitions in different ways, resulting in wide variations in the amount of care used.

The Medicare program, following uniform regulations nationwide, reimburses only a portion of home-health care for the aged and the disabled. For calendar year 1990, Medicare reimbursement for home-health care totaled 7.9% of outlays for inpatient hospital services for the aged and 4.9% for the disabled. Some states spend similar amounts on home-health services, indicating that the services are used in the same manner as they are in the Medicare program. Other states, however, spend considerably more, indicating that the Medicare level (i.e., for recuperative care) is being excluded. For example, in FY 1990, Colorado spent $0.62 for home-health care for every $1 of inpatient care.

Similarly, the median expenditure by self-insured businesses in the 1984 Survey of Health Plans for home-health services was 0.9% of inpatient hospital services, and that for nursing homes was 1.6%. Similarly, the median percentages reported by health maintenance organizations (HMO) were 0.6% for home-health care and 0.8% for nursing home care. In this context, the benefits are defined in a similar manner to Medicare (i.e., for recuperative care). Although most state Medicaid programs report similar ratios for home-health services and nursing homes for the AFDC populations, some states report home-health care expenditures for the AFDC category that are an order of magnitude higher, e.g., Vermont with 3.3%. This would lead us to conclude that services are furnished to this population that would not be required for acute care alone.

Two technical problems are involved in separating the nursing home and home-health services reported by the states into acute and long-term care. The first is to identify states that spend too much on these services for it to be likely that the entire expenditure is for acute care. The second is to estimate the division between acute and long-term care (or other types of patients).

The approach taken in this analysis was to multiply the average ratio from Medicare of home-health and SNF expenditures to Medicare inpatient hospital expenditures by the inpatient hospital expenditures reported for Medicaid aged, blind, and disabled categories to determine the acute care portion. The portion remaining is estimated to be for long-term care. In the case of AFDC eligibles, the acute care percentage is taken to be the median expenditure reported by HMOs for home care and for nursing home care, respectively. In each case, the percentages should be biased upward by limiting the base to HMOs, which are more likely than state Medicaid programs to succeed in substituting these services for inpatient hospital care. The data reported by indemnity insurance programs, however, was regarded as much less reliable, since few insured programs maintain separate data for these types of benefits.

10. For each state, two adjustment factors are determined for each eligibility group (aged, blind, disabled and AFDC), one for Part A services and the other for Part B services. In previous reports, statewide rates used to determine these factors were computed using the Medicare Geographic Index for 1980, 1981, and 1982. The Medicare Geographic Index is available for each state, broken out by Part A and Part B service, by aged and disabled classifications, and by urban and rural classifications.

    For the aged, the calculation of the adjustment factors involved weighing the Medicare Geographic Index values for the aged for each urban and rural classification by the number of aged SSI recipients in each urban and rural area in 1981. In order to smooth any random price fluctuations, the statewide rates for Medicaid cost for the aged were computed as the average over 1980, 1981, and 1982 of the weighted values. Adjustment factors were then determined as the ratio of the statewide rates for Arizona to the statewide rates for each state.

    Statewide rates for the disabled and AFDC were computed in a similar manner. For the disabled, the Medicare Geographic Index values for the disabled and the number of disabled SSI recipients in 1981 were used. For the AFDC, the Medicare Geographic Index values for the aged and the number of AFDC recipients in 1981 were used. Statewide rates for the blind were assumed to be the same as those for the disabled.

    Because the data are more than ten years old, new adjustment factors were determined using the same methodology, but using more recent data. Statewide rates were determined using data during FY 92. Medicare Standardized Per Capita Rates of Payment for Part A and Part B services for 1992 were used instead of the Medicare Geographic Index (the Medicare Geographic Index is no longer determined). Because these rates are determined by county, the weights used in the calculations were the number of cash recipients in each county of the states in December of 1991. The same procedure was followed to determine statewide rates for FY 93. The statewide rates for FY 92 and FY 93 were averaged to determine combined statewide rates.

    The adjustment factors obtained using the more recent data are very similar to those using the data from the early 1980's. Because the difference in the resulting per capita cost was small (at most 1.5%) and it is desirable to be as consistent as possible in our analysis throughout time, the previous adjustment factors are maintained.

11. Program statistics from the Office of the Actuary show that for an average Medicare beneficiary, Part A pays for about 93 percent of allowed costs of hospital care. The remaining seven percent consists

mostly of copayments, and noncovered days. Patients with dual eligibility generally have longer stays, more copayment liabilities, and more days beyond the Medicare coverage limits. In order to take this into account, we lowered the 93 percent to our estimate of 90 percent of allowable costs of hospital care covered by Medicare for dually-entitled beneficiaries.

12. The source for the percentage of SSI that are also receiving OASDI was Table 9.D2 of Social Security Bulletin: Annual Statistical Supplement, 1990 and 1991, published by the Social Security Administration, U.S. Department of Health and Human Services.

13. Earlier studies disclosed the need for a methodology to deal with outliers. There were some states that had cost per capita so far from the average that it was believed to be far more likely to be attributable to faulty data than true cost variation. The 1.5 standard deviation level was chosen by HCFA.

14. The data source for an estimate of the percentage of disabled SSI recipients who are also eligible for Medicare is Table 5.D1 of Social Security Bulletin: Annual Statistical Supplement, 1991, 1992, and 1993, published by the Social Security Administration, U.S. Department of Health and Human Services. According to the data, as of December 1990, 1991, and 1992, the percentage of disabled workers who have been entitled to Social Security for at least two years is 83.9%, 82.9%, and 81.9%, respectively.

15. Program statistics from the Office of the Actuary show that for an average Medicare beneficiary, Part B pays 75% of the allowed cost of physician services.

16. The following reconciliation was performed to compare the ALTCS program incurred cost estimates (shown in Tables 2-17 to 2-20) with the medical expenditures for the ALTCS program reported on the HCFA-64 reports:

	Incurred Costs (000's)	HCFA-64 (000's)	
FY 90	$ 244,695	$ 192,358	
FY 91	304,983	323,906	
FY 92	355,649	348,732	
FY 93	414,731	425,973	
Subtotal	1,320,058	1,290,969	
		+ 7,928	FY 91 DES reconciliation
		+ 11,754	FY 92 DES reconciliation
		+ 5,164	FY 92 DSH payments
		+ 6,328	FY 93 DSH payments
		- 2,400	Indians excluded from analysis

		+	315	Estimate of incurred but unpaid claims
Adjusted Total	1,320,058		1,320,058	

17. The geographic adjustment factors for the daily cost of acute care services for institutionalized persons are the same as those used in the analysis of the AHCCCS acute care program.

18. Price adjustment factors for long-term care services are determined by comparing an "adjusted average hourly wage" for Arizona with an "adjusted average hourly wage" for each state. The "adjusted average hourly wage" takes into account the average wage of non-professional health care workers in the state as well as the overall average wage in the state. There are five steps involved in the computation of the "adjusted average hourly wage" for a state. First, for each year 1990 through 1993, data from the Current Population Surveys are used to tabulate an average hourly wage for each of the following classifications of non-professional health care workers in the state: Office Personnel, Health Service Workers, Hospital Workers, Nursing and Personal Care Facilities, and Residential Care Facilities. Second, for each of the health care worker classifications, all average wage data are converted into 1992 dollars based on the change in the U.S. average hourly wage. The four years of converted data are then combined based on the number of workers in the state each year. Thus, for each of the health care worker classifications, four years of data have been combined to obtain an average hourly wage in terms of 1992 dollars. Third, the worker classifications are then combined by adjusting to the number of workers in each classification in the U.S. The result of this adjustment represents a "preliminary adjusted average hourly wage" for the state in terms of 1992 dollars for the non-professional health care workers. Fourth, the average of annual wages below the Social Security wage base for all workers in the state is computed using 1990 Social Security data. In order to make the average annual wage comparable with the "preliminary adjusted average hourly wage" (determined in step 3), the average annual wage is multiplied by a factor. The factor equals the "preliminary adjusted average hourly wage" for the U.S. divided by the annual Social Security wage of the U.S. Finally, the "adjusted average hourly wage" is determined by averaging the "preliminary adjusted average hourly wage" (step 3) and the converted hourly wage as determined in step 4.

19. Our experience in working with data from state Medicaid programs indicates frequent problems with apparent outliers, i.e., observations that are judged to be highly unlikely. Some of these problems may be due to variations in how states gather and compile data.

20. Minnesota Department of Human Services, Minnesota Department of Health, and Minnesota Health Plans, The Minnesota Utilization Data Definitions Committee Reporting Standards for Health Care Utilization Data (February 1992).

21. R. Berenson and J. Holahan, *Using a New Type-of-service Classification System to Examine the Growth in Medicare Physician Expenditures, 1985-1988,* (Washington, D.C.: The Urban Institute, December 1990).

22. A small number of procedure encounters appeared to be generating incorrect allowed charges in the AHCCCS pricing system due to the incorrect coding of the units field. For these kinds of services, the allowed charge and units fields were reconstructed. First the old allowed charge field was divided by the old units field. This number became the new allowed charge. The new unit field became one. In addition, for some durable medical equipment services with inaccurately reported units and for some manually priced transportation services where allowed charges were not reported, allowed charges were set equal to paid charges. These fixes resulted in much more well-behaved allowed charges.

23. Nelda McCall, Lynn Paringer, Michael Crane, C. William Wrightson, and Howard Marantz, *Evaluation of the Arizona Health Care Cost Containment System: Fourth Implementation and Operation Report* (Menlo Park, California: SRI International, January 1989).

    Nelda McCall, Pamela Turner, Michael Crane, and Howard Marantz, *Evaluation of the Arizona Health Care Cost Containment System: Utilization of Medical Care Services in the Fourth and Fifth Program Years* (Menlo Park, California: SRI International, January 1989).

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    Nelda McCall, Jodi Korb, and Ellen Jones Bauer, *Evaluation of Arizona's Health Care Cost Containment System Demonstration: Third Outcome Report* (San Francisco, California: Laguna Research Associates, January 1994).

24. Nelda McCall, Stanley Moore, and Jodi Korb, *Evaluation of Arizona's Health Care Cost Containment System Demonstration: Summary Statistical Report* (San Francisco, California, Laguna Research Associates, December 1994).

25. Nelda McCall, Jodi Korb, Michael Crane, William Weissert, and C. William Wrightson, *Evaluation of Arizona's Health Care Cost Containment System Demonstration: Third Implementation and Operation Report* (San Francisco, California: Laguna Research Associates, 1993).

26. For more detailed comparisons between the characteristics of the two states see: Nelda McCall, Jodi Korb, Lynn Paringer, Donald Balaban, C. William Wrightson, John Wilkin, Alice Wade, and Margaret Watkins, *Evaluation of Arizona's Health Care Cost Containment System*

Demonstration: Second Outcome Report (San Francisco, California: Laguna Research Associates, April 1993, pp. 215-219).

27. At the mental health program's inception on October 1, 1990, coverage for mental health and substance abuse services was initially extended to children under 18 who required 24-hour supervised care. On April 1, 1991, coverage was broadened to include all children under the age of 18. AHCCCS beneficiaries aged 18 through 20 were added to the program on October 1, 1991.

28. Robert Berenson and John Holahan, Using a New Type-of-service Classification System to Examine the Growth in Medicare Physician Expenditures, 1985-1988. (Washington, D.C.: The Urban Institute, December 1990).

29. Naihun Duan; W.G. Manning, Jr.; C.N. Morris; and J.P. Newhouse; "Comparison of Alternative Models for the Demand for Medical Care," Journal of Business and Economic Statistics, Vol. 1, No. 2 April 1983, pp. 115-126.

30. Medicaid Managed Care Enrollment Report, Summary Statistics as of June 30, 1994, (Washington, D.C.: Health Care Financing Administration Office of Managed Care, June 1994); Medicaid Managed Care Enrollment Report, Summary Statistics as of June 30, 1992, (Washington, D.C.: Health Care Financing Administration Office of Managed Care, June 1992).

31. Native Americans residing on reservations have the option of receiving care through IHS or enrolling in one of the capitated plans.

32. Minnesota Department of Human Services, Minnesota Department of Health, and Minnesota Health Plans, The Minnesota Utilization Data Definitions Committee Reporting Standards for Health Care Utilization Data (February 1992).

33. Robert Berenson and John Holahan, Using a New Type-of-service Classification System to Examine the Growth in Medicare Physician Expenditures, 1985-1988, (Washington, D.C.: The Urban Institute, December 1990).

34. A small number of procedure encounters appeared to be generating incorrect allowed charges in the AHCCCS pricing system due to the incorrect coding of the units field. For these kinds of services, the allowed charge and units fields were reconstructed. First the old allowed charge field was divided by the old units field. This number became the new allowed charge. The new unit field became one. In addition, for some durable medical equipment services with inaccurately reported units and for some manually priced transportation services where allowed charges were not reported, allowed charges were set equal to paid charges.

35. Nelda McCall, Lynn Paringer, Michael Crane, C. William Wrightson, and Howard Marantz, Evaluation of the Arizona Health Care Cost Containment System: Fourth Implementation and Operation Report (Menlo Park, California: SRI International, January 1989).

Nelda McCall, Pamela Turner, Michael Crane, and Howard Marantz, Evaluation of the Arizona Health Care Cost Containment System: Utilization of Medical Care Services in the Fourth and Fifth Program Years (Menlo Park, California: SRI International, January 1989).

Nelda McCall, Pamela Turner, C. William Wrightson, John Wilkin, Gordon Trapnell, Donald Balaban, Margaret Watkins, Lynn Paringer, Ellen Jones Bauer, Sande Kiriluk, Betty Skipper, and Neill Piland, Evaluation of the Arizona Health Care Cost Containment System Demonstration: First Outcome Report (San Francisco, California: Laguna Research Associates, July 1991).

Nelda McCall, Jodi Korb, and Ellen Jones Bauer, Evaluation of Arizona's Health Care Cost Containment System Demonstration: Third Outcome Report (San Francisco, California: Laguna Research Associates, January 1994).

36. At the mental health program's inception on October 1, 1990, coverage for mental health and substance abuse services was initially extended to children under 18 who required 24-hour supervised care. On April 1, 1991, coverage was broadened to include all AHCCCS eligible children under the age of 18. AHCCCS eligibles aged 18 through 20 were added to the program on October 1, 1991.

37. The HCFA Regional Office's March 1993 review of the AHCCCS mental health program found the encounter data for seriously mentally ill beneficiaries ages 18 to 20 to be substantially incomplete.

38. In late 1993, an intermediate round of calls were made to 13 states (California, Florida, Kentucky, Minnesota, Missouri, New Jersey, New York, Ohio, Oregon, Pennsylvania, Tennessee, Washington, and Wisconsin) to conduct a preliminary assessment of each state's potential to supply comparison data for the AHCCCS utilization analysis. Four of these states (Florida, Kentucky, New Jersey, and Tennessee) were dropped from further follow up because their Medicaid managed care programs did not meet selected criteria designed to target programs that were similar to the AHCCCS program during FY 91 and FY 92.

39. Previous conversations with staff at GHAA indicated that 90% or more of national Medicaid enrollees were AFDC beneficiaries in 1986. GHAA was unable to update this information at this time.

40. To remove dually-eligible beneficiaries from the denominator, we multiplied the total number of Medi-Cal public assistance aged, blind, and disabled eligibles in 1991 by the percent of eligibles without any Medicare coverage during that time period. In 1991, 48% of Medi-Cal's public assistance aged, blind and disabled eligibles were enrolled in Medicare Parts A and B, 8.6% were enrolled in Medicare B only, and less

than 1% were enrolled in Medicare Part A only. (Telephone conversation with Jim Klein, California Medical Care Statistics Section, California Department of Health Services, April 1995.)

41. The risk-vulnerability hypothesis argues that people who perceive themselves to be at risk of high utilization and, therefore, vulnerable to high out-of-pocket costs are more likely to join health maintenance organizations or high-option plans with limited cost-sharing.

See S.E. Berki, Roy Penchansky, Robert S. Fortus, and Marie L. Ashcraft, "Enrollment Choices in Different Types of HMOs: A Multivariate Analysis," Medical Care, Vol. 16, No. 8, August 1978, pp. 682-697; Harold S. Luft, Health Maintenance Organizations: Dimensions of Performance (New Brunswick: Transaction Books, 1987).

42. Thomas W. Bice, "Risk Vulnerability and Enrollment in a Prepaid Group Practice," Medical Care, Vol. 13, No. 8, August 1975, pp. 698-703; S.E. Berki and Marie L.F. Ashcraft, "HMO Enrollment: Who Joins What and Why: A Review of the Literature," Milbank Memorial Fund Quarterly/Health and Society, Vol. 58, No. 4, 1980, pp. 588-632.

43. S.E. Berki and Marie L.F. Ashcraft, "HMO Enrollment: Who Joins What and Why: A Review of the Literature," Milbank Memorial Fund Quarterly/Health and Society, Vol. 58, No. 4, 1980, pp. 588-632; Harold S. Luft, Health Maintenance Organizations: Dimensions of Performance (New Brunswick: Transaction Books, 1987).

44. Fred J. Hellinger, "Selection Bias in Health Maintenance Organizations," Health Care Financing Review, Vol. 9, No. 2, Winter 1987, pp. 55-63.

45. Nelda McCall, "Arizona: The Arizona Health Care Cost Containment System: Implementation by Plan Structure," in Advances in Health Services Research, eds. Richard M. Scheffler and Louis F. Rossiter (Greenwich: JAI Press, 1985), Vol. 10, pp. 221-240.

46. For reviews of the selection bias literature see Gail R. Wilensky and Louis F. Rossiter, "Patient Self-Selection in HMOs," Health Affairs, Vol. 5, No. 1, Spring 1986, pp. 66-80; Harold S. Luft, Health Maintenance Organizations: Dimensions of Performance (New Brunswick: Transaction Books, 1987).

47. See, for example, Arleen Leibowitz, Joan L. Buchanan, and Joyce Mann, "A Randomized Trial to Evaluate the Effectiveness of a Medicaid HMO," Journal of Health Economics, Vol. 11, 1992, pp. 235-257; A.R. Davies, "Selection of Prepaid or Fee-for-Service Care by Medicaid Families: Examining the Health-Risk Hypothesis," in Advances in Health Services Research, eds. Richard M. Scheffler and Louis F. Rossiter (Greenwich: JAI Press, 1989), Vol. 10, pp. 183-198; Thomas W. Bice, "Risk Vulnerability and Enrollment in a Prepaid Group Practice," Medical Care, Vol. 13, No. 8, August 1975, pp.698-703.

48. Deborah A. Freund, Louis F. Rossiter, Peter D. Fox, Jack A. Meyer, Robert E. Hurley, Timothy S. Carey, and John E. Paul, "Evaluation of the Medicaid Competition Demonstrations," Health Care Financing Review, Vol. 11, No. 2, Winter 1989, pp. 81-97.

49. Klaus J. Roghmann, J. William Gavett, Andrew A. Sorenson, Sandra Wells, and Richard Wersinger, "Who Chooses Prepaid Medical Care: Survey Results from Two Marketings of Three New Prepayment Plans," Public Health Reports, Vol. 90, NO. 6, November-December 1975, pp. 516-527; S.E. Berki, Roy Penchansky, Robert S. Fortus, and Marie L. Ashcraft, "Enrollment Choices in Different Types of HMOs: A Multivariate Analysis," Medical Care, Vol. 16, No. 8, August 1978, pp. 682-697; Harold S. Luft, "Compensating for Biased Selection in Health Insurance," The Milbank Quarterly, Vol. 64, No. 4, 1986, pp. 566-591.

50. With a few exceptions, plan contracts cover an entire county so beneficiaries can be assigned to any of the contracting plans in their county.

51. During the period covered by this study, there were six bid rate categories: AFDC, SSI with Medicare, SSI without Medicare, MN/MI with Medicare, MN/MI without Medicare, and Children's Care Program (CCP). In addition, plans bid for supplemental delivery payments for Sixth Omnibus Budget Reconciliation Act (SOBRA)-eligible pregnant women. MN/MIs included individuals with annual incomes, net of medical expenses, less than $3,200 and maximum assets of $50,000; the income limit is increased by one-third for a spouse and 17 percent for each additional dependent. CCP included children eligible under SOBRA, as well as children in two categories for which federal matching funds were not available--Eligible Assistance Children (EAC) and Eligible Low Income Children (ELIC). EAC covered children under the age of 14 in families that received food stamps, but were not categorically eligible. ELIC covered children under 14 in families with incomes less than the federal poverty level and maximum assets of $50,000.

52. An additional advantage of this approach is that it controls for potential differences between plans in encounter reporting rates, unless reporting rates within a plan differ for beneficiaries that are randomly assigned and those that are not. Although substantial differences in encounter reporting rates by plan were observed in earlier years of the AHCCCS program, the quality of the encounter data had improved considerably by the time period covered in this study.

    See Nelda McCall, Lynn Paringer, Michael Crane, C. William Wrightson, Pamela Turner, Ellen Jones Bauer, and James Boismier, Evaluation of the Arizona Health Care Cost Containment System: Final Report (Menlo Park, California: SRI International, January 1989).

53. AFDC beneficiaries over the age of 18 are considered adults.

54. Although a four-part model of health care expenditures is often estimated, there were too few sample members with inpatient use for reliable estimation of separate equations for those with outpatient utilization only and those with inpatient utilization.

See Naihua Duan, Willard G. Manning, Jr., Carl N. Morris, and Joseph P. Newhouse, "A Comparison of Alternative Models for the Demand for Medical Care," Journal of Business and Economic Statistics, Vol. 1, No. 2, April 1983, pp. 115-126.

55. The robustness of regression coefficients to the influence of a small number of observations was tested further by re-estimating equation (3) after excluding observations that had a Cook's D statistic in the top two percent. Cook's D identifies observations that may drive results due to outlying values of either independent variables or the residual. Parameter estimates from the lognormal regressions were mainly unaffected by the removal of influential observations. The impact of these deletions is discussed in the results section of this chapter.

56. The smearing estimate is the sample average of the exponentiated residuals from the least squares regression on the logarithm of expenditures. See Naihua Duan, "Smearing Estimate: A Nonparametric Retransformation Method," Journal of the American Statistical Association, Vol. 78, No. 383, September 1983, pp. 605-610.

The deletion of influential observations reduced the smearing estimates because a criterion for a high Cook's D statistic is an outlying residual value. One difference between results derived from regressions with influential observations omitted and those based on the full sample is, therefore, the magnitude of the scale factor used to retransform predictions from the log scale.

57. A generalized linear model (GLM) using a gamma distribution was considered as an alternative to the lognormal for equation (3). The gamma, which has a skewed positive distribution, is a plausible alternative to the lognormal for modelling health care expenditures. In addition to the distributional assumption, estimation of GLM requires the assumption of a linear relationship between a function of the dependent variable (called the link) and independent variables in the model. An advantage of GLM over the lognormal is that the linear predictor retransforms directly to the original scale of the dependent variable without using the smearing estimate as a correction factor. Because its distributional assumption pertains to the untransformed dependent variable, GLM also more accurately models observations in the tails of the distribution than the lognormal.

Despite its appeal, GLM was eventually rejected in favor of the lognormal for these analyses. A major concern was that the influence of a small number of outlying observations would be too great in GLM. A second issue was the choice of link function. There are two possible links that can be used with the gamma distribution--the inverse or the logarithm. Although the logarithm is a natural choice, GLM using a gamma distribution and a logarithmic link minimizes the sum of percentage errors, rather than the sum of errors; therefore, the expected value of the retransformed linear predictor does not necessarily equal the mean of the dependent variable. While the inverse link does preserve this relationship, the inverse function is poorly behaved. For example, as the linear predictor approaches zero, the predicted value on the original scale becomes infinitely large. The predicted value is also not constrained to non-negative numbers.

Unfortunately, even using the lognormal distribution and the smearing factor, the expected value of the retransformed predictor from equation (3) does not always equal the mean expenditure for beneficiaries with service use. Models without covariates accurately predicted the mean for AFDC adults and children; the CCP prediction was four percent less than the observed mean. Predictions from models that included covariates were less accurate. For AFDC adults with service use, the predicted mean annualized expenditure ($2,285) was about five percent greater than the observed ($2,187). In the children's samples, the observed means exceeded the predicted. For AFDC children, the average predicted ($845) was nearly five percent less than the average observed ($898), although the difference falls to less than two percent if two outlier cases with expenditures greater than $500,000 are omitted. The divergence for CCP was much greater; the average predicted ($883) fell 23 percent below the average observed ($1,151). This discrepancy is due to the influence of extreme outlier values, which have a substantial impact on the observed mean, but not on predictions from the lognormal regression. The observed CCP mean is $890 when the nine highest cost cases, with annualized expenditures over $100,000, are omitted.

58. Naihua Duan, Willard G. Manning, Jr., Carl N. Morris, and Joseph P. Newhouse, "A Comparison of Alternative Models for the Demand for Medical Care," Journal of Business and Economic Statistics, Vol. 1, No. 2, April 1983, pp. 115-126.

59. This procedure does not test the possibility that moments of the error distribution higher than the variance depend on explanatory variables.

60. The estimated smearing factor is also a weighted average.

61. The White test is based on the significance of a regression of the squared error on all explanatory variables in the model, their squares, and their interactions with each other. In a few variants of the model, the null hypothesis of homoskedasticity was not rejected based on the full set of regressors defined by the White test, but was rejected based on a more limited set that included only the explanatory variables in the model. Heteroskedasticity was still assumed to be present in these models.

62. Due to the presence of interaction terms, appropriate combinations of dummy variables were set to one and zero to estimate the effects of $PLAN_j$, NON-RANDOM, and NON-RANDOM*$PLAN_j$.

63. There were significant differences between plans in enrollment duration for randomized beneficiaries in all three groups. Differences in enrollment spell length were all attributable to the presence of Plan 5, which first entered AHCCCS one year before the study period began; in contrast, the other plans had been in AHCCCS for seven to eight years at the beginning of the study period. Although the presence of Plan 5 explained differences across plans in the weighted distribution of observable characteristics among AFDC children, in the AFDC adult and CCP groups significant difference remained even after omitting Plan 5.

64. A possible explanation for the disparity between the weighted and unweighted results is that initial plan assignment is random, but attrition from plans is not. This explanation was investigated by comparing unweighted distributions when the sample was split into enrollees with long enrollment spans (greater than one year) and short enrollment spans (one year or less). It was expected that the distribution of randomized beneficiary characteristics would differ across plans in the long enrollment span group, but not in the short group. This expectation was confirmed in the short enrollment span group. However, in the long enrollment span group, the only significant difference across plans was the distribution of beneficiaries by ethnicity among AFDC adults and children; the difference among AFDC children disappeared when Plan 5 is omitted. Thus, it is not clear that non-random attrition processes account for the discrepancies between the weighted and unweighted results.

65. A very small number of services that occur during a capitated enrollment span are entirely reimbursed fee-for-service by the AHCCCS Administration and are not a plan liability. These services are excluded from utilization data.

66. Allowed charges reported on some encounters for non-institutional services were modified because they appeared to be implausibly high. These aberrations were caused by errors in the reported number of service units, which is used by AHCCCS to assign allowed charges to non-institutional services. For services where it was reasonable to assume that an encounter represented a single unit of service (maternity global fees and procedures), reported allowed charges were divided by the number of service units; in other cases (primarily encounters for durable medical equipment), allowed charges were set equal to paid charges. Allowed charges were also set to paid charges on encounters for manually-priced services (mainly transportation) where allowed charges were not reported.

67. A period of continuous enrollment is defined as one interrupted by a break of no greater than seven days.

68. As of September 1, 1991, over 87% of all acute AHCCCS beneficiaries were enrolled in one of the capitated acute plans; 98% of beneficiaries in Maricopa County were enrolled in a capitated acute plan. (Ninety percent of acute beneficiaries who were not in a capitated plan received services through the Indian Health Service.) A small number of newborns

(36 in the sample in Maricopa County) that were enrolled in one of the capitated plans under a non-capitated contract were excluded from the analysis.

69. One of the five plans included in the study served all except three ZIP codes in Maricopa County.

70. Beneficiaries with Medicare dual eligibility were excluded from the analysis, both because the effects of the capitated plans on utilization are likely to be diluted and because encounter data are likely reported incompletely for dual eligibles. Pregnant women eligible under SOBRA and SSI-eligible beneficiaries without Medicare were dropped because of small sample sizes. MN/MIs, who are all assigned, were used only in regressions to test the uniform plan effects assumption for AFDC adults.

71. Movers (one percent of all observations for AFDC and CCP beneficiaries) were excluded because the plans do not all serve the same counties and it cannot be assumed that the randomized population is the same across counties. Re-enrollees (26 percent of all AFDC and CCP observations) were excluded because the observable characteristics of re-enrollees who were initially randomized differed between plans. While this finding was unexpected, it indicates that re-enrollment of beneficiaries after more than a brief break does not occur randomly by plan. In order to maintain comparability between randomized and non-randomized beneficiaries, the same exclusions were made in the non-randomized group. As a result of these exclusions, long-term enrollees are under-represented in the sample.

    There was concern that randomly assigned beneficiaries, who are given an opportunity to switch plans during the annual open enrollment period, could not be considered randomized after open enrollment. However, only a small percentage of beneficiaries actually change plans during open enrollment, so the impact is minimal. For example, about half of the randomized AFDC and CCP beneficiaries in the sample with an enrollment spell during the ninth program year were eligible to participate in the open enrollment period at the end of that year. Of those eligible, only six percent actually switched plans.

72. Plans receive partial reimbursement of the allowable fee-for-service amount for beneficiaries with expenditures above a defined threshold, for certain sick newborns, and for beneficiaries who are hospitalized, undergoing radiation therapy or chemotherapy, or in the final two weeks of a complicated pregnancy on the date of enrollment.

73. Regressions were also estimated using annualized allowed charges net of reinsurance and deferred liability payments as the dependent variable. These payments were expected to reduce any observed selection effects. However, regression results were not affected by using net allowed charges as the dependent variable because such payments were made for fewer than one percent of sample members with positive expenditures and because the logarithmic transformation already downweights the influence of extremely high-cost cases.

74. Observations that represent enrollment spells of different duration do not fully satisfy the assumptions of the lognormal distribution because the lognormal is not closed under convolutions. That is, if one month of utilization is distributed lognormal, the sum of two months of utilization do not have the same distribution scaled up by a factor of two. However, even distributions that are closed under convolutions (such as the gamma, for example) only satisfy this property when independent observations are summed. Therefore, utilization data covering time periods that are not uniform cannot be modelled perfectly even by a distribution that is closed under convolutions because it is implausible that successive months of medical expenditures are independent. This problem is usually addressed by restricting observations to equivalent time periods, such as a year. It was not possible to make such a restriction in this analysis because there were not enough beneficiaries that were observed for a full year. Furthermore, such a restriction has the disadvantage that the sample is not representative of the Medicaid population because beneficiaries with brief eligibility durations are excluded.

75. Non-random is defined using the enrollment type on the record in effect when the beneficiary first enrolled in the plan. For example, if a beneficiary who originally was randomized to a plan changes rate categories, AHCCCS generates a new enrollment record with an enrollment type indicating that there was a rate code change. For this analysis, the original enrollment type is carried forward and the beneficiary remains classified as randomized after the rate code change.

76. Extrapolating from data for new enrollees after the information system conversion which reliably differentiate beneficiaries that chose their plans from those that were manually assigned, approximately two-thirds of sample members classified as non-random actually chose their plan.

77. It is likely that language is reported with error for AFDC adults and children. Only 22% of AFDC adults and 30% of AFDC children (unweighted percentages) are coded as English-speaking, which is implausibly low. In comparison, 63% of CCP beneficiaries are reported as speaking English. As a result of this miscoding, the coefficient on English will be attenuated in the regressions for the AFDC samples. This attenuation also spreads to the coefficients on other variables in the regressions that are correlated with language. Other than the dummy variable for not having language reported, the variable most strongly correlated with English is the one for receipt of cash benefits (correlation of -.22 in the AFDC adult sample and -.27 in the AFDC children sample). Increasing length of enrollment span is also negatively correlated with speaking English.

78. Except as noted, descriptive statistics in this and subsequent sections are weighted by enrollment span length.

79. Arizona initiated an Aid to Families with Dependent Children of Unemployed Parents program on October 1, 1990.

80. After excluding influential observations with high values of Cook's D statistic, plan effect variables became jointly significant (p=.002). In addition to being significantly different from Plan 1, the plan effect for Plan 3 was significantly larger than that for Plan 5, and the Plan 4 effect was significantly larger than Plan 2 and Plan 5.

81. The magnitude of all the effects measured by the interaction of plan with non-random increased after the exclusion of influential observations, suggesting the existence of selection against Plan 1. Selection effects favoring Plan 4 and Plan 5 relative to Plan 1 become significant at p<.05 and the selection effect variables are jointly significant (p=.01).

82. After omitting influential observations, selection on unobservable characteristics that favors Plans 4 and 5 relative to Plan 1 was statistically significant.

83. Predicted expenditures presented in this section, as well as in the corresponding sections for AFDC and CCP children, are derived from models that included covariates. However, models without covariates produce similar results and conclusions are unaffected by the choice of model.

84. When influential observations are excluded, the plan effects comparing Plan 2 to Plan 1 and Plan 4 become significant (p=.05).

85. Newborns are assigned to their mothers' plans. While it would have been desirable to classify newborns using their mothers' randomization status, it was not possible to link the enrollment files of family members based on available data.

86. Only the negative coefficients for having an enrollment span greater than one month and greater than four months long remain significant when influential observations are omitted.

87. The greater disparity between plans in the share of randomized beneficiaries among CCP eligibles compared to AFDC reflects differences in the rules for determining the proportion of the randomized population that is allocated to a plan. A sliding scale based on the percentage deviation from the low bid rate is used for AFDC beneficiaries. During this time period, AFDC capitation rates differed only slightly so plans received similar shares. For the CCP population, each plan is assigned a fixed proportion that ranges from 40 percent for the low bid plan to five percent for the high bid plan.

88. Eligibility for the EAC and ELIC programs was limited to children under the age of 14, while SOBRA-eligible children were less than eight years old.

89. When influential observations are excluded, adverse selection in Plan 4 relative to Plan 1 is significant at p=.05; however, the selection effect variables remain jointly insignificant (p=.28).

90. After deletion of influential observations, the estimated effect of non-random*Plan 5 increases in magnitude and is more precisely estimated. These analyses show significant evidence of selection favoring Plan 5 relative to Plan 1 (p=.04), Plan 3 (p=.03), and Plan 4 (p=.04). Nonetheless, the interactions of plan and non-random remain jointly insignificant (p=.22).

91. The difference in Plan 5 becomes insignificant when influential observations are omitted.

92. Robert E. Hurley and Deborah A. Freund, "Determinants of Provider Selection or Assignment in a Mandatory Case Management Program and Their Implications for Utilization," Inquiry, Vol. 25, No. 3, Fall 1988, pp. 402-410.

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